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THE BUILDERS' JOURNAL AND ARCHITECTURAL RECORD

Aug. 20, 1902. No. 393.

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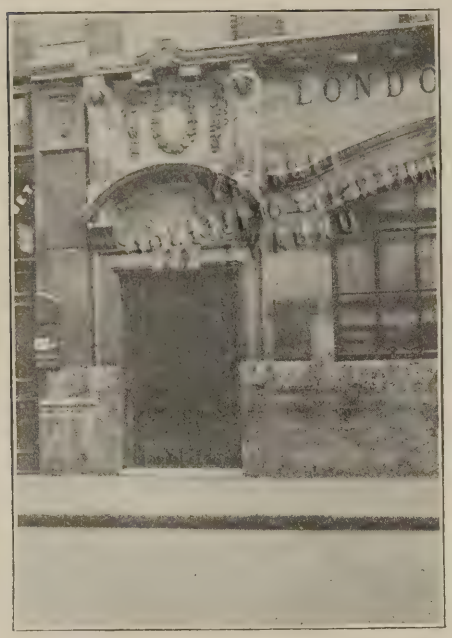
To Our Readers. With this number we commence a new volume, and the occasion has given the opportunity for a number of improvements to be made in the form and appearance of the journal. Our constant endeavour has been to make the journal useful and practical in its matter, artistic and interesting in its illustrations, and attractive in its appearance, holding to the idea that the journal of an artistic profession should be artistic itself. We are happy in continually hearing that our efforts are appreciated, some of our readers being kind enough to express the opinion that The Builders' Journal is better illustrated and has a better appearance than any weekly periodical at so low a price. It will be noticed that there are several important improvements in this first number of the new volume, the chief of which are the new cover design (printed in a better colour than formerly), new type and improved paper. These alterations, taken with the additional double-page lithographs employed for the centre plates each week, and the special arrangements we have concluded with our printers in order that the illustrations may be reproduced in the best possible manner, will, we think, bring The Builders' Journal into an unrivalled position. As regards the matter itself, it has been our policy to illustrate and deal with architectural subjects both old and new, so that we have had articles on various phases of different styles, and, at the same time, have kept our readers conversant with all the best modern work both at home and abroad. Moreover, we have given special prominence to constructional articles by acknowledged experts, believing these to be of the greatest use to the student; whilst the items of news relating to architectural, building and allied work have, by more extended arrangements, been made current and complete.

One of the Clergy. Though amateur building is familiar enough, amateur restoration is new to us, in saying which we do not mean restoration by professional men which could not have been more disastrous if done by a novice, but actual restoration by an amateur. This, we learn, is a hobby of the Rev. W. Burland, M.A. He has been busy on several churches, but the last is that of Compton Martin, near Bristol. This is (or maybe was) an extremely fine example of Norman work of its class, so that the late Mr. E. A. Freeman, whilst addressing an assembly of archæologists in it a generation ago, found much to eulogise. Whether he would do so now if he were alive we cannot say—probably not if the vicar's hobby led him to be his own judge; but we are glad to note that Mr. T. G. Jackson, R.A., has acted as his expert adviser. Many alterations have been made. The east window, put in within the last half century, was an imitation Norman one, which excited the hostility of Mr. Freeman. It has now been replaced by a new stained-glass window following the lines of Mr. Freeman's description of the older conditions. In the south aisle church restorers of long ago pushed up the roof to such an extent as to hide from an outside spectator the clear-story on that side. Nor was it visible from within, for the ceiling came below it. The rector has taken away this lath-and-plaster ceiling, and now the long concealed clear-story can be viewed without obstruction. This has made visible the row of holes in which once rested the rafters of the Norman roof. We have said that restoration is the rector's hobby; and we are assured that he takes an actual working part in the alterations which he makes. In this last instance he selected his own workmen and laboured with them; in fact there is a local rumour that the reverend gentleman is rather prone to work longer than the trade-union number of hours—but rumour spoke ill of even Cæsar's wife. However, the case is rather a unique one, though the precedent is dangerous enough; for if other parsons take it into their heads to go chipping and furbishing on the churches under their control we may soon expect them all to be as spick-and-span as any new hotel.

Housebreaking. When the burglar goes a-burgling he does not concern himself in any way with the regulations which may have been drawn up for his benefit, but in future his namesake the housebreaker will have to confine his work to certain hours. At a time when so many old buildings are being pulled down to make way for new ones, or to enable street widenings to be carried out, the nuisance caused by clouds of dust from bricks and mortar has become very serious, causing much annoyance to passers-by. It is therefore proposed to draw up a series of regulations on the subject, so that demolitions will not be allowed to proceed all through the day to the great discomfort of the public, and it is also intended to enforce the use of some method—such as water sprinkling—to prevent the clouds of dust that now occur. Whilst referring to this matter it is instructive to note that in the course of an inquest held last week on the body of a labourer who was killed by the sudden fall of the first floor of an old house being demolished in Tottenham Court Road, Mr. C. F. Hayward, district surveyor of Holborn, explained that he had no control over the demolition of old premises, which were generally pulled down in a very careless manner. The jury, in returning a verdict of accidental death, called attention to the danger in such cases of loading floors with rubbish, and expressed the opinion that those demolitions should be under the jurisdiction of the district or borough surveyor.



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RECENT STREET ARCHITECTURE IN LONDON.—VI.

By F. HERBERT MANSFORD.

(*Continued from p 377, No. 390.*)

IN a review of current architecture in the City published in this journal more than a year ago the first building referred to was the Prudential Assurance Company's premises at Furnival's Inn, a structure which has already altered the character of this part of Holborn, but which it is still premature to criticise. The principal elevation is now sufficiently free from scaffolding for the general design to be comprehended, but it should be borne in mind that the frontage was acquired at three distinct dates, and this has necessarily governed the disposition and proportions of the façade. The tower cannot fail to be an effective feature in the view both up and down Holborn, but will also be seen to particular advantage from Chancery Lane, looking along Southampton Buildings and over the roof of the hall of Staple Inn. The environment of this Inn is changing too, and the old half-timbered front is now seen between a buff terra-cotta façade on the east and the red terra-cotta of the new chambers on the west. The former is but the commencement of a block for Messrs. S. Lewis & Co., drapers, and the latter will be partly occupied by the Patent Agents and the Institute of Actuaries. At the rear of the Inn the tame Jacobeanism of the Patent Office extension carried out in white Suffolk bricks is in strong contrast to the blue and brown of the now completed Birkbeck Bank. The colour of this building is, perhaps, a successful characteristic; the writer at least must admit in this connection that an initial dislike has given place to a feeling almost of gratification so far as the south and west elevations are concerned, for in these the colour is warmer and less broken up.

At the north end of Fetter Lane one cannot fail to recognise the art of Messrs. Treadwell & Martin in an elevation peculiarly modern in conception and detail, yet one that does not overstep the recognised bounds of architecture. The segmental stone arches upon granite piers support a façade divided into three divisions vertically by projecting piers of masonry rising through and above the gable coping. The gable itself is terminated with a shell pediment supported by nude figures seated upon mullion-like pilasters. Iron stays are considered necessary behind this mass of masonry, to enable it to withstand wind-pressure. The carving generally is of a free and varied Renaissance character.

At the south end of the Lane, at the corner of Fleet Street, are extensive shops and office premises designed for the proprietors of the "Sheffield Daily Telegraph" by Messrs. Flockton & Gibbs (illustrated on the opposite page). The elevations are faced with dull-glazed faïence blocks of delicate tint, enlivened by coloured heraldry above the second storey representing the cities and towns in which the journal circulates. The little open colonnade above the staircase is a somewhat remarkable feature of the skyline. The building is worthy of a more spacious site, where, amongst other things, a greater width and strength could have been given to the piers at the angle.

At No. 88, Fleet Street (the offices of the "Birmingham City Post") is discernible the peculiar distinction which Mr. Belcher, R.A., never fails to give even to unobtrusive buildings. In this case the architect has depended for effect mainly on the restraint of the rusticated unpolished granite substructure and a refined treatment of the masonry above; only in the niches of the first storey and the blocking-course above the cornice does one see anything tangibly original.

In New Bridge Street the Rock Life Assurance Company have re-faced two of the old houses with stone, and, with due regard to the height of adjacent buildings, have preserved the continuity of the cornice line of the block. The enrichments are in the manner of Robert Adam.

On the east side of Queenhithe is a new warehouse with offices above possessing dignity and preserving well the character of its surroundings, while being by no means a merely antiquarian reproduction. The sole enrichments are the City arms and the foliage and lions' heads above the doorway; the rusticated columns of the ground storey are of polished Purbeck marble.

A further extension of the Stock Exchange in Old Broad Street emphasizes the piecemeal way in which this building has been conceived and carried out, a method doubtless due to the excessive cost of land in its vicinity. The portion of the façade completed a few years ago has undergone several small alterations to its detriment, such as the blocking-up of windows with masonry, &c. An occasional repetition, in the length of the façade, of the roof pavilion just erected would add dignity to the skyline—perhaps this is in contemplation.

In Throgmorton Street the Drapers' Company have completed the exploitation of the site formerly entirely occupied by their hall. The new stone building of which they occupy the upper portion possesses a very distinctive elevation, mainly due to the fact that it consists of but two storeys, one of which is kept in strict subordination to the other (see p. 4). It is not easy to vary "the orders" with success, yet few would criticise adversely these well-drawn pilasters with their richly-carved capitals and slightly unorthodox frieze. The pediments of the windows gain enormously by the extent of plain wall surface above them, and if the supporting consoles are considered to spring abruptly the effect is at least vigorous. The wrought-iron balconies are rich, pleasing and un-English in design, yet their swelling curves seem just what is wanted to give a touch of grace to the façade. The ironwork below appears somewhat tame and inharmonious. Mr. Charles Reilly is the architect of this building, and of the Throgmorton Restaurant adjoining.



NAME PANEL, OCEAN BUILDINGS.



OCEAN BUILDINGS, MOORGATE STREET, E.C.

The British Linen Company's Bank in Threadneedle Street (see centre plate) is a handsome stone building, from the designs of Mr. J. Macvicar Anderson, but it calls for little comment. It possesses the common-sense and rather unimaginative character usually considered suitable to a prosperous commercial corporation. That the third storey recedes considerably in the centre of the block may be due to neighbouring rights of light; the loss of space within is an architectural gain without, but it raises the difficult question as to how two balustrades should be treated when in perspective they will be viewed the one immediately above the other.

In the article previously referred to the general disposition of Mr. Collcutt's elevations for Lloyd's Registry were briefly described; the building is now adorned with sculpture and completed (see centre plate). Above the ground-floor windows is a beautiful frieze composed chiefly of female figures of that type already made familiar to us by Mr. Frampton, R.A. Charming as they are in themselves, it may be considered that in this instance they are not entirely suitable, lacking somewhat the robustness and vigour which is appropriate to a race of sailors and a building which is intimately associated with the greatest mercantile marine in the world. Father Neptune does not appear in this artistic assemblage; indeed, his brawn and muscle would appear strangely out of place. Very delightful are the weather vanes and the four bronze figures between the columns of the ground storey. The triple entrance gates in Fenchurch Street (see p. 1) are of great beauty of design and workmanship. The openings in which they occur are of equal width, but as the centre one is higher it appears slightly narrower; one now perceives that the side openings could have been slightly contracted with advantage.

In Minories is a recently erected branch of the London and County Bank. The entrance, shown in the accompanying photograph, is of blue and white stone with a plasterwork panel above, and affords a point of interest in an architecturally dull thoroughfare. Is it hyper-critical to suggest that the unoccupied space in the centre of the garland leaves the upper part of the composition a little pointless?

Anyone familiar with the Institute of Chartered Accountants must have awaited the removal of the great hoarding on Finsbury Pavement with impatient interest. The drawings of Electra House exhibited at the Royal Academy only served to heighten one's anticipation of a modern city block as dignified as any erected in the days before "degeneracy" was so much discussed, and fresher than most in detail. Unfortunately, much of the sculpture exists only on paper, for considerable modifications have taken place. The ruthless hand of economy has stifled in their birth numerous little boys: the square block pedestals between the dormers, now carrying standards for electric light, testify to the hopes of their existence. But we must admire the spirit of a company which, in order to complete its own architectural scheme, even proposed to demolish a costly block of offices erected but twenty years ago. The ground storey is constructed of unpolished grey granite with a superstructure entirely faced with Portland stone (see centre plate). The central entrance (illustrated on p. 6) is under a semicircular arch enclosing triple doors of copper between bronze-capped columns of green veined marble. These same capitals are decorated with dolphins, and are very charming in effect. The spandrels above the arch are occupied by figures emblematic of Electricity and Engineering, which trespass slightly upon the archivolt. The wings of the building are partly recessed behind widely-spaced Corinthianesque columns with capitals of



NO. 181, FLEET STREET, E.C. FLOCKTON AND GIBBS, ARCHITECTS.

varied but always beautiful design. The whole is dominated by a copper dome raised upon an octagonal drum of masonry and surmounted by an armillary globe of metal, borne by figures which recall those of Galileo's lamp at Pisa. Below the drum the fourth storey curves inwards and thus permits a more complete view of the dome from the pavement, besides affording emphasis to two of the pedimented masses which break up the façade at intervals. In Mr. Belcher's Academy drawings the four figures in low relief at the third-floor level were only part of a continuous series. They were shown supported by a course of scroll-like carving; this has been omitted in the actual work, and the figures have somewhat the appearance, in consequence, of standing upon a shelf. Until the corner of London Wall is rebuilt on the quadrant-shaped plan proposed, it is impossible to realise fully the architect's conception of the dome as seen from Moorgate Street: the accompanying view shows the effect from the North with the return frontage of the building in West Street, and the two-storeyed bay upon the angle. It is, perhaps, an open question if this bay, however good in itself, is an acquisition to the structure as a whole, or whether the angle would not have appeared stronger without it. The two windows on the cant above the bay and those on either side below the sculptured panels have been but recently inserted, rather to the detriment of the elevations, for the unusual amount of solid masonry had a fine effect.

Near by is a still larger block, Salisbury House; it contains many shops and about nine hundred offices. Its three frontages to Finsbury Circus, Circus Place and London Wall are entirely faced with stone. In the first-named elevation the elliptic curve of the site is ignored, preference being given to a series of short straight planes at slightly varying angles. After this, one will not anticipate that æsthetic considerations have weighed any more heavily with the designers than with the committee of the Corporation, who leased the site without ensuring that a harmonious architectural conception should be worked to around the whole Circus, more than half of which has been recently demolished.

The Electric Railway Station on Finsbury Pavement is mainly effective by the simplicity of its steep roof, gabled towards the principal elevation but disclosing itself fully at the side; here, however, it has been curtailed by ancient lights, and the ridge drops rather ignominiously.

Fifteen years ago Moorgate Street was perhaps the most symmetrical thoroughfare in the City—a quarter of a mile of unbroken classicism frequently rejuvenated by fresh paint. Now its level skyline is twice broken by Gothic spirelets, and stucco fronts contend with fashionable red brick. Ocean Buildings (why plural?), illustrated on the opposite page, display either the design or the influence of Mr. Huntly-Gordon. The tucked-in bay contrived without projection is a favourite device of his, and the mouldings and enrichments are equally characteristic. The back elevation is interesting in its treat-

ment and carefully considered, as may be judged from the small detail view of the name panel above the courtway.

The fire station in Redcross Street (see centre plate) may be regarded as an outcome of the Cripplegate fire of 1897. It marks a departure in design from its predecessors inasmuch as there is no feature which could be described as Gothic. The ground storey is faced with stone, but above red brick rises to the cornice relieved by the white paint of the small-paned iron casements. The cornice is shallow but of great projection, and gives that accent of shadow which is perhaps the most effective ornament a building can possess. Above, a gable of multangular outline has evidently been considered in relation to the vista down Jewin Street, which is directly opposite.

Newgate Prison fortunately seems to own a charmed life. Years ago it was condemned, and prisoners were sent elsewhere; at length a competition of designs for a new Sessions House on the site was held and decided, detailed drawings have been prepared, quantities taken out and tenders sent in, but still those expressive walls frown at us with admonition and suggest considerations as to the influence of Architecture upon Ethics. No erring draughtsman of the future will be able to occupy his mind with the historic and architectural dignity of his habitation, nor are Holloway or Brixton likely to inspire a future Ingoldsby. Meanwhile more modern buildings around rapidly give place to others. In Newgate Street, almost next door to the prison, premises have just been completed from the designs of Mr. C. Stanley Peach. The materials of the elevation are artificial stone and red brick, with teak joinery below and green painted woodwork above. The archway shown in the centre plate is in the middle of the façade, for the segmental bay is repeated on the other side. This arch and the windows and pediment above form a pleasing composition in themselves, and the mouldings and enrichments are everywhere fresh in character. The architect has evidently a liking for swags: one sees swag capitals, a swag keystone, swags between the "amorini," and swags take the place of heraldry upon the shields.

Great changes will take place in this vicinity shortly; the housebreakers are at work, and Christ's Hospital in London will soon be but a recollection, like Bridewell, Doctors' Commons or the Fleet.

(To be concluded.)

St. Mary's Cathedral, Middlesbrough.—The north and south transepts, blessed sacrament chapel and baptistery are now being erected, and the whole of the work has been entrusted to Mr. Anthony Lyons, builder and contractor, of St. Peter's Works, Norton Malton. The architect is Mr. E. Goldie, 31, Upper Phillimore Place, Kensington, W.



DRAPERS' HALL AND OFFICES, THROGMORTON STREET, E.C.
CHARLES REILLY, F.R.I.B.A., ARCHITECT.

THE FIREPROOFING OF HIGH OFFICE-BUILDINGS.*

By PETER B. WIGHT, F.A.I.A.,
Consulting Architect.

HIGH office-buildings have been made a success by the possibilities of construction developed with them. They were first built with brick walls, and the highest reached to sixteen storeys. Skeletons of cast-iron columns and rolled-iron beams were going up to the same height at the same time. The whole-steel skeleton came when the introduction of rolled steel superseded rolled iron, and it has continued to be the standard construction for these and many other kinds of buildings ever since.

But the possibility to attain this great height with safety came with the inventors of light hollow-tile systems of floor construction. The weight of floors was reduced before the weight of walls. Up to 1881 the average of fillings between I-beams of buildings having combustible floors was 70lbs., whether with brick arches or with corrugated iron covered with concrete. They were at one stroke reduced to 30lbs. by the use of flat hollow-tile 6in. arches in the nine-storey Montauk Block at Chicago. You all know what that means in computing the strength of foundations, walls and columns. From that time the number of distinctively high office-buildings increased rapidly. Other inventions followed, though as a matter of history the iron rail and concrete foundation (now nicknamed the "floating" foundation) was first used under the same building. It was one of the accidents of my life that I supplied both.

The steel skeleton having become an accepted fact, heavy walls, both exterior and interior, have been practically abolished. The earliest high office-buildings had not only exterior but interior walls of brick wherever the conditions of the plan would make their use practicable. In addition they were filled with stacks of heavy brick vaults which were permanent fixtures placed where it was supposed there would be a demand for them. Tenants had to select such quarters as suited them, according to the original plan of the building, as changes in plans were very expensive and often impracticable. But when the all-steel skeleton abolished the heavy wall it also abolished the vault, and in abolishing the vault it warned all concerned that the fireproof qualities must be of such a high grade that the whole building would be a fireproof vault. So the fireproof closet had its birth. This was one stimulus to a greater study of fireproofing conditions.

The Best Fireproof Material.

I am aware that it is contended by many men of your profession that concrete in combination with metal is a better fireproof material for constructive purposes than hollow building tile. I agree with you that in some cases it is, and therefore will not seek to provoke discussion. But the fact remains that the hollow building tile made of refractory clay is the material which has actually developed the high office-building as we find to-day, add I think it will always hold the most important place in such constructions. For while the common brick has been to a great extent supplanted, the wall and the arch have not gone out of use. The wall has only been reduced in thickness and in weight, and the weight of it has been reduced in greater proportion than the thickness. Long walls and high walls unsupported are no longer necessary, but they cover just as many superficial feet in height and breadth as before. The mason with his trowel is just as necessary; and while there are many ingenious methods for constructing subsidiary partitions without hollow tiles and without the help of the mason, there is still no way known for building the exterior walls or the main interior division walls of a building with the greatest rapidity in all kinds of weather and without the use of unnecessary quantities of water except with previously prepared dry blocks of refractory material, and of such only are the hollow tiles of burnt clay. Where an arch of large span is required, whether it be a large door, a dome or a wide span between deep floor beams, there has not yet been invented anything that is lighter for the work required, drier, more fireproof, more rapidly constructed and cheaper than the products of fireclay set in good cement. Yet there are substitutes, and they have their value, and for special purposes are desirable.

The special qualities and true value of this material and the kinds that are most reliable for fireproofing purposes will be considered when the conditions affecting a truly fireproof office-building are considered.

The main conditions to be considered are (1) the plan, (2) the materials, and (3) the constructive methods.

The plan belongs to the architect, and if he consults his engineer it will be a very simple one. It is safe to say that the best planned office-building on a rectangular lot will be one that is worked out on a system of smaller rectangles into which the lot is subdivided, with a column at each intersection. The main thing to do is to ascertain the best proportionate dimensions for these rectangles. If they are all the same there

* A paper read before the Engineers' Society of Western Pennsylvania, Pittsburg U.S.A.

will be only two dimensions for all the girders and beams in the building. Such an arrangement will result from making several sketch plans upon different subdivisions into rectangles until the best one is discovered. If this is found to be impracticable the system should be abandoned; but if possible the girders should be in straight lines, and the width of the exterior bays should be controlled by the spacing of interior columns.

Planning against Fire.

The general dispositions of the plan being adopted, the next thing to do (and one which few architects ever consider) is to study all the contingencies that would permit fire to attack such a plan from without or invade it within. Every high office-building is by its nature a flue, and the problem has hitherto been how to make it less so. So many have despaired of this that I am inclined to say that what might be possible in a great warehouse, in which vertical draughts can be avoided, need not be thought of lest the true value of the building as an investment be destroyed.

I would therefore advise that the natural flue conditions of a high office-building be improved by planning it so that the natural draughts which carry fire upward will as far as possible be directed away from the inhabited rooms and allowed to escape harmlessly through the top of the building. This can be accomplished by permanent flues built of double air-space hollow tiles running through the offices where they are least likely to interfere with future changes of partitions. These flues can be covered at the top with skylights of thin glass, which would break in case of fire, while permanent capped pipes, also at the top, would serve for ordinary ventilation. The openings from the offices into these shafts should be permanent and close to the ceilings. Such flues would carry fire and smoke through the roof and prevent it from spreading laterally.

Covered Courts and Lift Wells.

Large glass-covered courts should be avoided, as they tend to carry smoke and fire to upper storeys and smother the occupants. As elevators may become as valuable as stairways for means of escape, they should if possible be placed not in one stack but in two, and as far apart as practicable. In large buildings this would be a convenience to tenants in reaching their rooms expeditiously.

Every large office-building should have two entrances connected by a common hallway, and it is equally important that it should have two stairways from the second storey to the top and as far apart as possible. They should not be in position where a rising current of air can involve both a stairway and a stack of elevators.

Theorists have sometimes claimed that stairways and elevators should be individually isolated. Such a disposition would so injure the value of the investment that it should not be considered. Besides, an isolated stairway in case of a panic would be unknown to most af the occupants or visitors to such a building. With two vertical stacks of stairways and two vertical stacks of elevators, all connecting with corridors, it would be practicable to place spring-doors across the corridors which would isolate each stairway and each stack of elevators. Such cut-offs in the corridors should be entirely made of light metal frames and polished wire glass. This latter material will also be considered later on in connection with materials and construction, but as part of the plan of the roof it should take an important place. There are many instances in which the study of the natural action of fire in the top of a building shows that it is desirable to use glass that will break as soon as attacked by fire, so as to let the flames and smoke escape.

Ordinary and Wired Glass.

The indiscriminate use of wired glass, therefore, because it will admit light and still resist a current of fire is not to be encouraged, and it is easy to see that it might be the cause of many deaths from the accumulation of smoke which cannot escape. It is much more important that skylights should be of breakable glass, and to prevent injury caused by its fall they should have wire nets suspended beneath them. There should be such skylights over every elevator and every stairway, and if skylights are not required over them, as in the case of their being next to outer walls with windows, they should have large ventilators running through the roofs.

Any suggestions as to the capacityof elevators, stairways, corridors and doors seems hardly necessary here, for they are the important considerations which enter into the planning of every building, and are equally if not more important in a high office building than any other. The objects of a properly built high office-building other than the interest of the owner as an investment are safety to human lives and safety to the property contained in the building, as well as the building itself, as against fire.

This brings us to the second consideration —materials. That such a building must consist of fireproof materials re-enforced with the commonly accepted steel frame has been said. For the exterior, terra-cotta and brick take first place, but these are not necessarily backed with brick. Where they are not, the only material that has been used successfully is hollow fireclay tile. I have never yet heard it suggested that such materials as



ELECTRA HOUSE, FINSBURY PAVEMENT, E.C. JOHN BELCHER, A.R.A., ARCHITECT.

concrete or hollow plaster blocks should be used.

Methods of Protecting Columns and Girders.

It is now customary in the best buildings to construct the floors and protect the columns and girders before the exterior is covered. The exterior walls are not sufficient to protect the exposed columns and beams at the outer line of the structure. They are only a mask and may fall away, exposing the structure. These columns and girders should be first protected exactly as are those of the interior. Various methods are in use. By some it is advocated that they should be encased in Portland-cement concrete, completely buried in it, but it is not suggested that any fastening is required other than the adhesion of the cement to the steel and its own monolithic character. This method denies the necessity for any non-conducting air spaces. I know of only one building in which this was ever done; it was owned by a fire insurance company in New York, and it was done twenty years ago. The columns, which were of the Phœnix pattern, were covered with Portland cement run from a cornice mold and showing a moulded finish all around.

By others it is proposed to plaster the columns with cement on a lathing of wire or other perforated metal, and where one process like this is not considered sufficient it is proposed to repeat it twice and even thrice. This is frequently done, and its chief merit is its cheapness. The common method is to build hollow-tile blocks around the columns like a wall, and in some cases two courses of these are used. In severe fires which have occurred in several buildings it has been demonstrated that the exterior layers of these crack, for the reason that the exterior expands, while the interior is cool.

Defects of Hollow Tiles.

The worst defect in the use of hollow tile around columns is that no provision is made for longitudinal expansion. They are built from the girder of one storey to the girder next above. As a result it was demonstrated in the last fire that occurred in the Horne Department Store at Pittsburg that before the steel columns had absorbed enough heat to cause expansion the hollow-tile coverings were so badly crimped by expansion against the unyielding girders that many of them fell off. In an earlier fire in the Horne Office Building at Pittsburg, in 1897, the column coverings, which were of thick slabs of semi-porous terra-cotta built as a wall around them, were uninjured.

My earliest practice was to use solid blocks of a very high grade of porous terra-cotta both for columns and girders. For column coverings I always secured them to the iron with tap screws. For girders I made the blocks to fit the sections of I-beams, and found that no fastenings were needed, for the form of the I-beam is such as to hold the blocks tight between the flanges when well bedded in cement. Cast-iron columns, covered with porous terra-cotta 2½in. fastened to the iron with tap screws, were tested in a fire in the Grannis Block at Chicago in 1885, where they were pulled out of the ruins with all the fireproofing attached. There was nothing fireproof in that building except the columns.

I am now satisfied from experience of all the known materials in actual fires that the softness of porous terra-cotta is almost as objectionable as the brittleness of hard-burnt, thin-bodied tiles, and that the best fireproof material is the medium between them, and that is semi-porous, hollow tiles with walls at least ¾in. thick. The best illustration of their efficiency was seen in the Horne Office Building at Pittsburg in 1897, the material having been made in that same city.



JOHN BELCHER, A.R.A. ARCHITECT.

Clays.

Whenever a contract is let for the fireproofing of a building with clay products, the lowest contractor who secures the contract executes it with the kind of material he can make to the best advantage—it is the product of the clay he happens to mine. It may be suitable for the high-grade porous material or only for hard-burnt tile. But the best material to produce the results above suggested can only be made by mixing clays—in their natural state they are not suitable. This should be a subject for investigation and study by every manufacturer, so that a reasonably uniform standard article can be produced. Some clays may resist heat, but lack toughness; they become brittle and are not fit for hollow tiles with thin walls. Others again can be burned with large quantities of sawdust, and are wonderful non-conductors, but are too soft and not suitable for resisting severe strains. My own observation has shown that in most localities shales may be obtained which, when ground and burned with low-grade fireclays, produce the best material for semi-porous terra-cotta.

Too little attention has heretofore been given to standard qualities in burnt-clay fireproofing. When a standard is established, recognized and insisted upon by architects, there will be some hope for uniformity in results. As it is, there may be several kinds of burnt-clay fireproofing used in one city, and I know of some buildings in which the clay used was not above the grade required for ordinary flower pots. Where used, however, it was the result of indiscriminate competition and want of investigation. As a matter of fact most of the buildings fireproofed with burnt clay contain the highest grade of material. But the world will never see this fact demonstrated by the ravages of fire. It has never given the fireproof office buildings that have been erected within the last fifteen years the credit that is due them, and it never will. It only hears of the occasional one that shows failure in a crucial test. Those that have resisted the elements are dismissed with a paragraph. An occasional failure is not a demonstration that others may be expected. When it betrays the fault or the weakness it should be an object-lesson that is profitable. I regret, however, that this is not always the case.

The value of wired glass has been referred to. In an office building it will prove to have its greatest value when used in vertical positions where glass is necessary. It should also be used in all external windows wherever possible. But it should always be set in metallic sashes and frames. The supposed necessity for using wood in partitions, for door and window frames, has led to many demonstrations of the fact that this use has helped to destroy the efficiency of the fireproof materials of which they have been constructed.



UNITARIAN FREE CHURCH HALL, LONDON ROAD, READING. W. JANE, ARCHITECT.

Experience has also shown that wood should be practically abolished from the interior finish of office buildings, and this can be done now without raising any objections on the part of the tenants. Recent inventions have supplied all that is wanted. There is no longer any necessity for wooden floors. Notwithstanding it has been claimed that they will not burn, they do burn, and the oil and varnish which saturate the modern hardwood floors carry fire with great rapidity. The tenants have already anticipated the change, for they have abolished carpets and substituted rugs. If marble and tile are too expensive for floors, cement can be used. Doors need no longer be made of varnished wood, but of common wood covered with sheet brass and hung to metallic frames built in fireproof partitions.

Referring now to the third division of my subject—constructive methods—I feel compelled to tread my path with caution, for I may be invading the domain of the C.E. All discussion of constructive methods in fireproofing seems to lead to the building of floors, and this is where the C.E. has crossed the path of the architect more than once. The fact that extraordinary strength has been developed in constructions in which various combinations of Portland cement, sand and steel have entered, has made them very attractive to gentlemen of your profession.

I admit the strength and the ability to prevent fire from passing from one storey to another within a given time, and to one who seeks only for these results they are satisfactory. But house building has many ramifications.

Influences of Time and Climate.

The conditions under which houses are built are various. Among the most important of these are *time* and *climate*. Another is permanence. The oldest of the indestructible manufactured materials known to exist on the face of the earth is burnt clay. Time may show that the high grades of cement made at the present day come next to it, but we cannot wait for the outcome Finely divided steel, with which it is combined, is a very delicate material, and scientists all over the world are discussing the question "What is the best material to paint steel with?"—even where it is used in heavy members of construction. At such a time you will see if you look at nearly all of the high office-buildings that have been erected and are now being erected, that the architects who have to do with those buildings pin their faith to burnt clay. They have no time to wait and see whether the cement will eat the steel or preserve it, but they know that they have a good thing in clay, and as long as it is the only material which makes possible the building of furnaces in which iron can be made into steel, they will continue to build it up around the steel skeleton; and I hope it will preserve the steel skeleton for all time. For as the steel must be protected from fire and every inch of it covered, it is certain that when protected from one element it will be found to be pretty well clothed against the storms that try to beat against it and the insidious dampness that steam heat expels. However, I suppose that the discussion about corrosion will last until we have steam-heated bridges, and about electrolysis as long as we have damp cellars.

I have said that the architect will always be a believer in *the brick* and its substitutes, and his affection will always cling to his brother, the mason, even though houses may be built without heavy walls. With these materials and his skilful assistants he does not fear that terrible enemy to cement, Jack Frost, and he can get his work done fast enough to uit his client, which is saying a great deal. These are the convincing arguments for the use of burnt clay. My only plea is that this most important and universal material may be in the future the object of greater study for the purpose held in view in this paper; that as much investigation and experimentation will be devoted to the determination of the proper methods for manufacturing of clay products into fireproofing material as has been given to the adaptation of clay for use in the manufacture of steel. Its indestructibility is admitted; but it has a different office to perform in the burning building from what it has in the open hearth furnace. It can be made, for it has been made, to withstand water as well as fire. By proper mechanical means it can be made to keep its place under all conditions. It has also a field in constructive work such as has been developed by no other material, in the building of domes such as those erected by Guastavino. Whatever apparent failures there may have been in this as a fireproofing material are exceptions to the general practice that has been followed in its use, and only serve as a warning against its unscientific and unpractical application.

Unitarian Free Church Hall, London Road, Reading.—This hall, which was opened recently by the Mayor of Reading, consists of a spacious room with two classrooms, and lavatories and cloakrooms. The building is of red bricks with tiled roof. The floors are of wood block. The architect is Mr. W. Jane, of Reading and Weston-super-Mare, and the contractor Mr. F. Newberry, of Reading.



UNITARIAN FREE CHURCH HALL LONDON ROAD. READING. W. JANE, ARCHITECT.

Masters and Men.

The Dispute at Burton between the stonemasons and their employers still remains unsettled, neither party being willing to give in. As a consequence of the strike the work at the parish church and the new All Saints' Church is at a standstill.

The Carpenters and Joiners' Society shows in its monthly report just over 2⅛ per cent. on out of work benefit throughout the organisation. During the month two new branches have been opened. Negotiations are still in progress with the object of bringing about if possible an amalgamation of the various joiners' trade unions.

Labour in July.—The Labour Department of the Board of Trade reports that employment in July shows little change on the whole as compared with June. There has been a slight recovery in the metal trades, but employment in these industries is still worse than a year ago. In the 222 trade unions, with an aggregate membership of 550,169, making returns, 21,859 (or 4·0 per cent.) were reported as unemployed at the end of July, as compared with 4·2 per cent. in June, and 3·4 per cent. in the 216 unions, with a membership of 539,422, from which returns were received for July, 1901. The mean percentage of unemployed returned at the end of July during the ten years 1892-1901 was 4·1. Employment in the building trades continues dull, and is generally not so good as a year ago. It is fairly good with masons, slack with bricklayers, bad with painters and plasterers. The percentage of unemployed union members among carpenters at the end of July was 2·9, compared with 3·0 at the end of June, and 2·8 in July, 1901. The percentage for plumbers was 6·5, compared with 5·5 at the end of June and 6·3 for July, 1901. The changes in rates of wages reported during July affected 293,911 workpeople, and the nett effect of all the changes was a decrease averaging 7½d. weekly per head of those affected. Of the total number, 15,631 received advances, and 278,280 sustained decreases. The changes of the previous month affected 343,486 workpeople, the nett result being a decrease, averaging 1s. 9¼d. weekly per head. During July, 1901, the number affected was 272,768, and the nett weekly result was a decrease of 1s. 1¼d. per head. The principal advances reported during the month affected 6,400 ironstone miners in Cleveland, 1,500 limestone quarrymen, &c., in Weardale, 3,500 blast furnacemen in Scotland, and 1,140 steelworkers at Eston. Two changes, affecting about 123,000 workpeople, were arranged by Conciliation Boards, and seven changes, affecting about 141,000 workpeople, took effect under the sliding scales. One change, affecting 350 workpeople, was preceded by a dispute causing stoppage of work, and the remainder, affecting about 29,500 workpeople, were arranged directly between employers and workpeople or their representatives. Twenty-five fresh disputes began in July, involving 104,642 workpeople, of whom 17,907 were directly and 86,735 indirectly affected. The corresponding number of disputes in June was 11, affecting 10,679 workpeople, and in July, 1901, 28, affecting 8,148 workpeople. Of the new disputes in July, 1902, one took place in the building trade, 13 in the mining industry, and 4 in the metal, engineering and shipbuilding trades. Of the 20 new and old disputes, affecting 103,191 workpeople, of which definite results were reported, 1, affecting 340 workpeople, was decided in favour of the workpeople; 15, affecting 5,517 workpeople, in favour of the employers; and 4, affecting 97,334 workpeople, were compromised.

New Patents.

These patents are open to opposition until September 23rd.

1901.—Door Bolts. — 14,425. R. Powell, 3, Bartholomew Road, Birmingham. The bolt is folded from sheet metal and placed in the shoot on the base plate. To allow this to be done, the latter is bent at any angle; after the bolt is in position the base plate is pushed up flat. There is thus no necessity to rivet a stop for the bolt, all being folded.

Concrete Roofs, &c.—16,400. T. Potter, 5, Outram Road, Croydon. To support the centering, hangers of **Z** form are employed, hung on the walls. Another improvement consists in inserting metal channels under the joints of the concrete for the purpose of carrying away water. Over the centre of the channels are strips of zinc or other material for dividing the concrete into sections, thus allowing for expansion and contraction.

1902.—Cold Storage.—3,504. L. Mantel, National Liberal Club, Whitehall Place, London, S.W.; W. T. Prim, 80, Worple Road, Wimbledon; and J. Keith & Blackman Co., Ltd., 27, Farringdon Avenue, London, E.C. By an arrangement of channels and valves a positive circulation of dry cold air is secured. Means are also provided for the circulation of moist air when required, for getting rid of vitiated air, and for automatically obtaining a supply of fresh air.

Imitation Marble. — 9,431. S. Weill, Trierertrasse 14, St. Johann a.d. Saar, Germany. The process consists in mixing anhydrous alum and gypsum with water so as to form a dough and then kneading this with a suitable colouring matter.

Fixing Iron Railings.—11,617. F. G. Oldenburg, 12, Eimsbüttelerstrasse, Altona, Hamburg. This invention relates to a tool which enables one man to do the work of two. The tool consists of a kind of vice which holds the bars in place whilst they are being caulked.

The following specifications were published on Thursday last, and are open to opposition until September 30th. The names in italics are those of communicators of inventions. A summary of the more important of them will be given next week.

1901. — 8,385, Marles & Butt, feed-mechanism for wood moulding and carving machines. 12,764, Oakland & Oakland, drying bricks. 14,721, Ellis, locks. 15,163, Cundall, sheet metal plates for wall coverings. 15,284, Biggs, sanitary pipe joints. 16,200, Nentwig, toy building materials. 17,467, Keith & Wardle, ventilating apartments. 17,734, Kelsey *(Pelzer & Co.)*, appliances for actuating goods lifts on the coin-freed system. 18,345, Aufort, tunnel kilns. 18,453, Innes, lavatory stands. 18,511, Merryweather, ladders. 18,605, Tümler, Venetian blinds. 18,768, Bailey, valve seatings. 18,770, Innes, brackets for cisterns. 18,956, Seilheimer, heating buildings, &c. 19,183, Rennie, plumbers' traps. 22,081, Cussen, distemper wash or water paint. 25,400, Boult *(Baumann)*, heating apparatus for asphalt, bitumen, &c.

1902. — 9,297, Lake *(Warren)*, making roads, pavements, &c. 9,965, Marcus, apparatus for conveying material. 10,810, Vennesla, pump. 11,322, Ford, method of building subaqueous foundations. 11,498, Weeks, apparatus for generating acetylene gas. 12,408, Stenner, jr., & Stenner, three-speed feeding gear for rack saw benches. 13,146, Adams, combined bath and lavatory basin. 13,720, Simpson & Simpson, fixing tiles. 14,039, Ellam, means for guiding in using stencil paper. 14,142, Winterflood, water heaters. 14,332, Haddan *(Bullard, Penty, Lynch & Dorer)*, spring butt hinges.

Builders' Notes.

Mr. James Hurley Gillingham, of Bishopston, Bristol, died recently at the age of fifty-two years. Deceased, with his two brothers, managed the business of house decorators, &c., in Stokes Croft, established by his father.

Mr. James Watterston, builder, of Forfar, died recently at the age of eighty-three years. He was a native of Forfar, where for almost half a century he had carried on an extensive business as a builder. During his lifetime he executed some important contracts, including the National Bank, Canmore Works, &c. Four of his sons are builders.

The Stonework in Glasgow Municipal Buildings. — At a recent meeting of the Glasgow Town Council Mr. W. F. Anderson asked some explanation as to the expenditure on repairing the outside walls of the municipal buildings, as to which the city engineer reported that "while it is quite unsafe to express any opinion as to the ultimate cost of eradicating the decay of the stonework, and covering the restored surfaces with preservative solution, it does not appear probable that what has been already done represents more than one-fourth of the entire work." The cost up to the present has been £2,400. The Municipal Buildings Committee were instructed to prepare a statement on the subject.

Hamilton Building By-laws.—At a recent meeting of Hamilton Town Council it was moved that it be an instruction to the Dean of Guild Court to enforce part 12 of schedule 4 of the Police Act, 1892. It was explained that at present the Court were permitting partitions round the chimneys of dwelling-houses of 18in., instead of 27in. as prescribed in the Act, and that his object was to put the committee on the housing of the working classes on an equal position with private builders. It was stated that the clause dealt with building conditions in England, which were inapplicable to Scotland, and that the provision had slipped into the Act. Bailie Pollock, Dean of Guild, defended the action of the Dean of Guild Court in sanctioning 18in. partitions, and questioned the right of the Town Council to review their action. Provost Keith ruled that it was the the duty of the Council to see that the Dean of Guild Court carried out the law. The motion was carried by nine to four, one member declining to vote.

Workmen's Compensation: Home Office Report.—The Home Office has issued statistics of proceedings under the Workmen's Compensation Acts, 1897 and 1900, and the Employers' Liability Act, 1880, during last year. It is stated in the general conclusion that the number of appeals on questions of law has diminished considerably, and there seems, therefore, reason to hope that progress has been made towards the definite settlement of the legal difficulties in the interpretation of the Act of 1897. On the other hand, the number of cases brought to the county courts, in most of which it must be questions of fact that are at issue, still tends to increase; but even in view of this increase the statement must be repeated that the cases which come before the county courts do not represent more than a very small proportion of those in which compensation is paid under the Act. The great majority of claims are settled by agreement, and only a small percentage are made the subject of final arbitration. There were 437 cases brought before the county courts, 420 under the Workmen's Compensation Acts and 17 under the Employers' Liability Act.

Enquiries Answered.

The services of a large staff of experts are at the disposal of readers who require information on architectural, constructional or legal matters. Questions should in all cases be addressed to the Editor. The querist's name and address must always be given, not necessarily for publication.

Charges for Surveying and Plotting an Estate.

LONDON, W.—SURVEYOR writes: "I have recently surveyed an estate of 9 acres, made plan, and plotted it out for building purposes into 120 plots; also made an amended tracing and an alternative plan of portion of the estate. I have also made a tracing for lithographer for auction sale purposes of plots Nos. 1 to 46 inclusive, and have pegged out these plots, half of which have been sold, though not through me. What is the *maximum* charge I can make for this work, and is there a recognised scale?"

There is no scale which applies, as the difficulties which are met with in surveying small plots cannot be averaged. The only reasonable way of charging is by time, and as it can be absolutely substantiated by diary entries it is a method which cannot easily be defeated should the bill have to be taken into court. Principals are entitled to a *minimum* allowance of 3 guineas per diem, varying from this amount upwards, according to their status. Assistants' time is usually charged at about double their salaries, with a minimum of half-a-guinea per diem. All out of pocket expenses are chargeable, as also is time necessarily occupied in travelling.

G. A. T. M.

Plastering Brick Walls.

NORTHAMPTON.—BRICK writes: "In some dilapidations I have to attend to the salt in the bricks is causing the ordinary lime plaster to rot and fall away. I am ordered to remedy this at any cost. Can you suggest a remedy?"

Batten and lath walls, and plaster on that in the ordinary way. Plaster should not be put direct on external brick walls.

Tennis Courts.

WICKWAR, GLOUCESTER.—J. S. B. writes: "Could a satisfactory tennis court be made by levelling a thoroughly hard and dry surface, and then laying, say, 3in. thick of finely screened ashes on the top and well rolling?"

Tennis courts are often made similarly to the manner you propose, but a surface of ashes is dusty, and we advise you to use asphalt. A layer of cement is also used, but will crack unless rendered on about 6in. of concrete while the latter is "green"; it is also hard, cold, and glares strongly in the sun.

Safe Stresses in Iron and Steel.

YORK.—S. G. H. writes: "The Table XI. in Rivington's 'Building Construction,' Vol. IV., is worked out to a safe compression shearing stress of 4 tons per sq. in. for iron. When using steel, how many tons per sq. in. may be taken?"

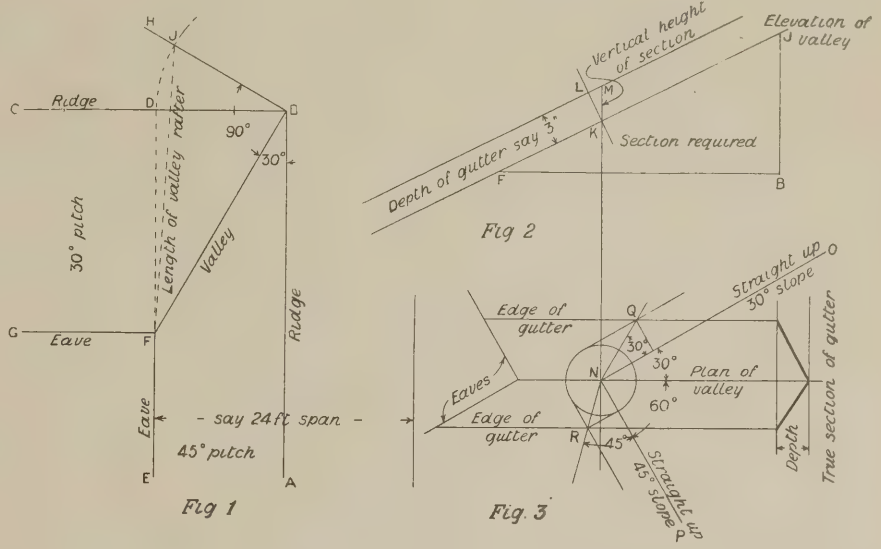
The ordinary working stresses for wrought iron are 14,000lbs. per sq.in., and for mild steel 13,000lbs. to 16,000lbs. both in compression and tension, but for cast-iron in compression 11,000lbs. and 3,360lbs. in tension. You will therefore see that the table in Rivington does for both wrought-iron and steel, but is wasteful of material.

Valley Gutters for Roofs with Unequal Pitches.

LONDON, N.W.—GAS writes: "I have two roofs of iron covered with slates (one of 45 degs. and the other of 30 degs. pitch) intersecting. I intend to form an iron gutter-piece, as the roof is to contain nothing but iron, and I should like to know how to arrive at the section of this gutter."

Draw plan of ridge of 45-deg. roof AB, Fig. 1, and BC at right angles for ridge of 30-deg. roof. Set off BD equal to half-span of 45-deg. roof and produce through to E. Then, as BD also represents height of ridge above eaves of both roofs, from AB set off BF at an angle of 30 degs. and cutting DE in F, to represent the plan of intersecting valley, and draw FG, the other eave. From B set up BH at right angles to BF, and from B with radius BD describe an arc cutting BH in J. Join JF, and this will give the length of the valley rafter, the pitch being the angle BFJ. In Fig. 2 draw the elevation of valley corresponding to line FJ on base FB, but to a larger scale, and set up required depth of gutter. Take a point K at bottom of gutter where a section KL can be obtained. Draw plan of valley, Fig. 3, and drop vertical KN through point K, so that KM is the height of a vertical section through the gutter when in position, KL the line of an ordinary cross section, and N a point in the bottom of the gutter. From N describe a circle with KM as radius, and also from point N set off an angle of 30 degs. to the line showing plan of valley, which will represent the position of a line O passing straight up the slope of the flatter roof, and on the other side of the line set off an angle of 60 degs., which will represent the position of a line P going straight up the steep slope. Now set off an angle of 30 degs. from NO and draw a parallel tangent from circle to intersect it in point Q, also an angle of 45 degs. from line NP and a parallel tangent from circle to intersect it in R, then lines through Q and R parallel to the centre line of valley will represent the actual edges of gutter in plan. On the right-hand side of plan draw a perpendicular to intersect centre line and set up the depth of gutter, when a line parallel to the last through this height will intersect with the edges of the gutter and enable a true section to be drawn as shown by thick lines.

HENRY ADAMS.



VALLEY GUTTERS FOR ROOFS WITH UNEQUAL PITCHES.

"Ferro-Concrete."

LONDON, E.C.—A.R.I.B.A. writes: "Will the author of the highly interesting article on the above material in your issue for July 30th kindly explain how the strength of a 'ferro-concrete' beam is calculated, and also the meaning of the words on p. 388: 'The formula for calculating the influence of the moment M on a given section, at a distance y from the neutral axis $= a \frac{My}{I}$ where a represents the ratio of the co-efficients of elasticity in iron and concrete. The co-efficient of iron = 12,500 tons per sq. in., that of concrete = 12·50 tons per sq. in., therefore $a = 10$.' What is the 'influence of the moment'?"

The formula $\frac{My}{I}$ is the ordinary one used for beams, and represents the intensity of stress at any point distance y from the neutral axis. M is the bending moment, and I the moment of inertia of the section. The formula is the same as given in Hurst's Pocket-Book as $M = \frac{FI}{\delta}$ The method of using this formula for stresses in beams is given by Hurst, and also on p. 409 of our issue for June 26th, 1901. The explanation of the method by which the formula is arrived at is a long one, and we cannot spare the space here to deal with the matter. We must therefore refer our correspondent to such books as Rankine's and Perry's manuals of mechanics.

SPES (LONDON) has omitted to send us his name and address. Until this is sent we shall not answer his enquiry.

VIELLE MONTAGNE ZINC GAUGE.

UNDER this heading we published on p. 304 of our issue for June 25th last a table of thicknesses and weights of the various gauges of zinc which was slightly different from the present manufacture of the Vielle Montagne Zinc Mining Company. The correct table is as follows:—

No. of Gauge.	Approximate Thickness.	Weight per ft. super. of Sheet Zinc.
	Inches.	Oz.
1	0·004	2·31
2	·006	3·25
3	·007	3·93
4	·008	4·81
5	·010	5·68
6	·011	6 68
7	·013	7·75
8	·015	8 87
9	·018	10·31
10	·020	11·43
11	·023	13·31
12	·026	15·12
13	·029	16·93
14	·032	18·75
15	·038	21·75
16	·043	24·75
17	·048	27·68
18	·053	30·68
19	·058	33·68
20	·063	36 62
21	·070	40·75
22	·077	44·87
23	·084	49·06
24	·091	53·18
25	·098	37·31
26	·105	61·43

KNOSSOS AND PHAESTOS.

THE CRETAN EXPLORATIONS ALMOST COMPLETED.

ALMOST interesting communication from a special correspondent was published in last Friday's "Times" in reference to the excavations which have been carried on for some years past in Crete. The discoveries made in the island since 1890 rank among the most brilliant achievements of archæological research. The picture of a long-forgotten civilisation has been unrolled before our eyes; the frescoes, the reliefs, the sculptures not only furnish a wholly new revelation of ancient art, but bring vividly before us the life of a remote age in its domestic, civic and religious aspects; the mythical figures of Dædalus and Minos stand out in the midst of the past and are clothed with an almost historic reality. The crowning achievement, however, consists in the complete vindication of Mr. Arthur Evans's theory that two distinct systems of writing, the linear and the pictographic, were employed by the prehistoric inhabitants of the Ægean area.

The Work at Knossos and its Difficulties.

The systematic excavation of Knossos was begun by Mr. Evans in March, 1900. His efforts to investigate the site date from 1895, when he first acquired a portion of the ground by purchase; and his perseverance in the face of many obstacles has met with a rich reward. Some details remain to be worked out, and the search for tombs in the neighbourhood will be continued next year; but the great work has practically been completed. The vast prehistoric palace, extending over five acres, with its courts and halls and staircases and labyrinthine passages, stands a living witness to the fabled grandeur of the Minoan realm.

For those who have not watched the progress of the works it is not easy to realise the magnitude, the difficulty, the cost, and at times the dangers of this remarkable undertaking. Owing to the steepness of the eastern declivity a great retaining wall has been constructed in order to prevent subsidence, and the excavation of the lower floors on this side has necessitated the employment of strong wooden props and a large amount of new masonry supporting the upper storeys. The throne room and the adjacent apartments have been protected from the weather by a strong roof, covered with Santorin cement, and supported on the side of the impluvium by three new columns tapering towards the base, the design being taken from one of the frescoes found in the palace.

From a purely material point of view the palace, as it now stands, forms a valuable bequest to the Cretan community; the Candia Museum, enriched with a unique collection of frescoes, sculptures, vases and other works of art, is now one of the most interesting in Europe, while the employment of native labour—from 200 to 250 workmen have been daily engaged in the excavations—has been a boon to the town and neighbourhood, where thousands of Moslem refugees have been congregated since the last insurrection. Owing to the inadequacy of subscriptions, Mr. Evans has drawn largely on his private resources during the prosecution of the work; and in the circumstances it is somewhat disheartening to learn that his request for permission to remove a few duplicate vases and other objects to Oxford has not even met with a reply from the Cretan Government.

New Discoveries.

The principal discoveries of the past season up to the end of last April have been described in these columns. The anticipation that the remaining operations would be productive of interesting resutls has been amply fulfilled.

On the northern side of the palace, near the north-east corner, a large portico has been revealed with double rows of six columns. The portico was evidently approached by a road leading up through the neighbouring valley from the sea-coast; on the inner side a stepway communicates with the central court, the passage being flanked with bastions of huge square stones marked with tridents. This was evidently the sea-gate through which the poetic imagination may picture the Minoan sailors passing with bands of captive pirates or, it may be, a disconsolate train of Athenian youths and maidens on their way to the lair of the Minotaur.

One would gladly accept Mr. Evans's attractive idea—that in the intricate passages of the palace we find the original of the legendary Labyrinth, the haunt of the monster, and that the name is derived from the Carian *lábrus*, the double battle-axe, a sacred symbol which occurs so frequently in every part of the building. But his theory seems almost as applicable to the complicated structure at Phæstos, the other great palace now brought to light, where the double-axe, which was also a symbol in the early Cretan script, repeatedly appears as a mason's mark, alternating with other signs.

Notwithstanding the local legend, the fresco-paintings and reliefs of bulls at Knossos can scarcely be taken as imparting a special character to the palace in view of the very frequent representations of the animal in Mycenæan art; nor is it easy to abandon the older view which connects *labúrinthos* with *laúra*, an enclosed passage or alley—the name of more than one Greek monastery—and *Laúreion*, "the place of the catacombs"—the mining town in Attica.

Sewers and Drain-Pipes.

A little below the north portico is a great sewer passing into the adjoining valley. In general the sanitary arrangements at Knossos seem to rival those of our own times. Shafts from the upper storeys communicate with conduits in the basement; the drain-pipes are almost exactly similar to those recently found by Professor Dörpfeld at Lerkas, and present a wonderfully modern appearance. On the south-eastern side of the palace another portico has been discovered with six columns and a corner pier.

The Wonderful Phaestos.

The remarkable excavations carried out by the Italian archæological mission at Phæstos under the able direction of Professor Halbherr form a counterpart to Mr. Evans's great undertaking at Knossos. The works, which were begun in June, 1900, occupied three seasons, and, like those at Knossos, have now been practically concluded. The site of the ancient Homeric city, the rival of Knossos, was identified by Admiral Spratt half a century ago, though no trace of the masonry was visible except a few calcined blocks on the summit of the acropolis.

Phæstos lies almost due south of Mount Ida, at a distance of about three miles from the southern coast. The architectural lines of the palace are incomparably more striking than those of Knossos. Here also there is a large western area, or agora; the pavement is traversed by some curious slightly-raised diagonal lines, which perhaps had reference to ceremonies or games celebrated in the enclosure. The agora terminates at its northern end in a broad series of stone steps, apparently intended for an auditorium. To the west, protected by a ramp—the Homeric *hérkos*—another wide and imposing flight of steps leads up through a portico to the great hall, or *mégaron*, which measures 27·70 metres by 13·75, thus surpassing in dimensions any Mycenæan apartment yet discovered.

The *mégaron*, like the "Hall of the Double Axes" at Knossos, is divided into two portions—a vestibule and an inner chamber consisting of two compartments separated from each other by three columns. To the right are the store-rooms or magazines, ranged on either side of a broad corridor; in the centre a great stone pier, which apparently serves no structural purpose, may conceivably furnish another example of Mycenæan pillar cult.

From the magazines we pass through another large *mégaron* with columns, probably the hall of the men as distinguished from the women's hall in the gynæconitis, into a vast rectangular space flanked with porticos—the central court of the palace. In the whole range of Mycenæan discoveries there is nothing more imposing than this magnificent quadrangle; viewed from its southern end, with the snowy crest of Ida towering above, it possesses a strange and wonderful beauty in its present solitude and desolation.

A broad doorway to the north, with niches on either side, apparently designed as sentry-boxes for two eunuchs, leads into the gynæconitis, the women's quarter, with thalami or bedrooms, a bath, a columned *mégaron* and propylæa opening to the north. The buildings on the eastern side of the great court communicate with the gynæconitis, and are conjectured to have been the residential quarter; on the western side, separated from the magazines by a broad corridor, are a great number of small apartments, which were probably inhabited by servants.

A Comparison.

Any adequate comparison of the two great palaces of Knossos and Phæstos would be excluded by present limits. The buildings present many points of similarity in general design, architectural features, mode of construction and various details. Both sites were inhabited from the remotest times, as may be concluded from the neolithic deposits in the lowest strata. The palaces were both destroyed by fire in the Mycenæan age; but Phæstos, after a certain lapse of time, perhaps two centuries, was occupied by new settlers, of whom traces are found in courses of post-Mycenæan masonry and in pottery of the "Kurtes" type, which is transitional from the late Mycenæan to the geometric.

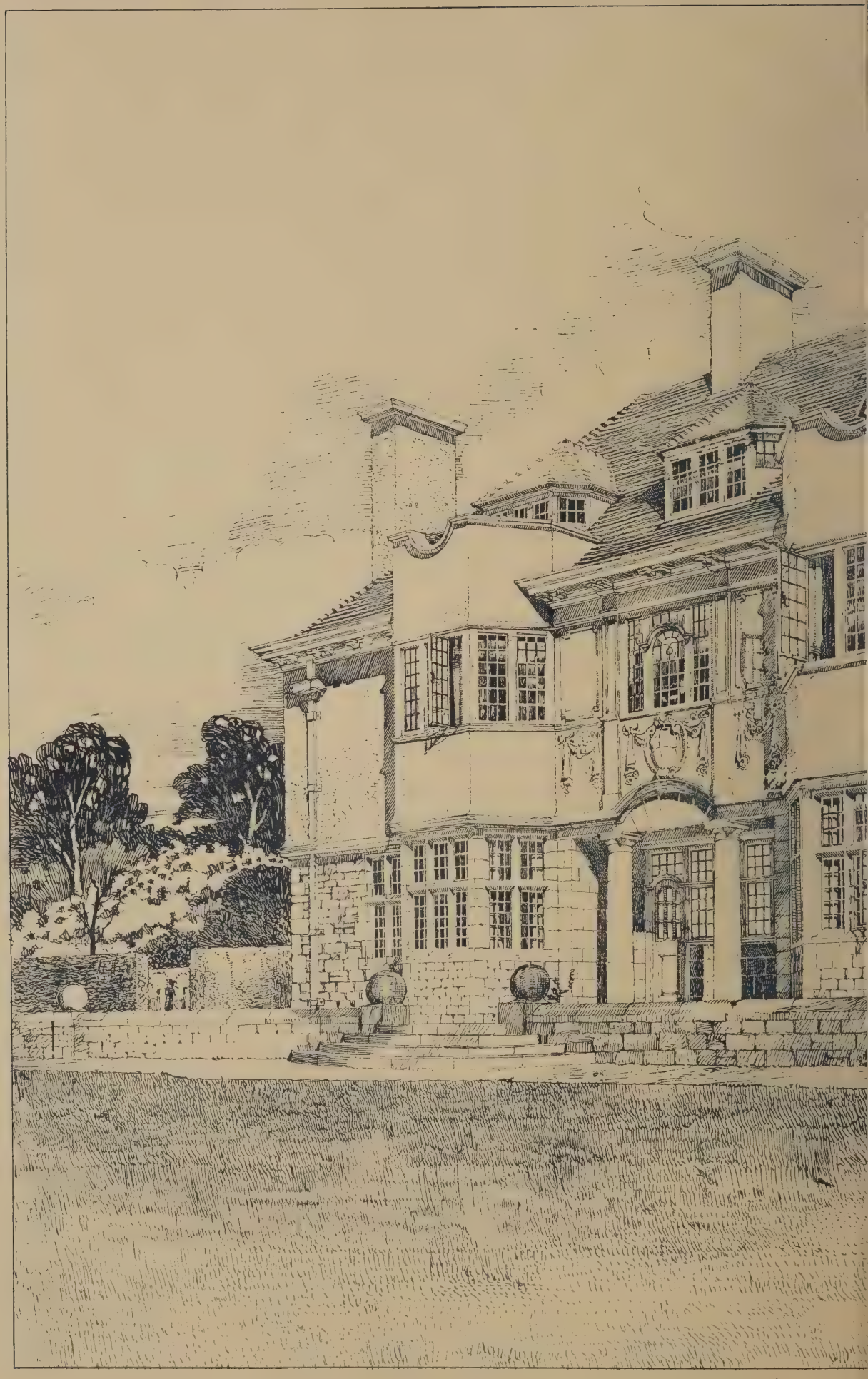
Mycenæan Phæstos appears to have flourished somewhat earlier than Knossos and at a period anterior to the highest perfection of Mycenæan decorative art; the paintings, for example, are more primitive and conventional than those at Knossos, which abound in subjects taken from nature and real life. On the other hand the structural magnificence of Phæstos—largely attributable, of course, to the greater capabilities of the site—the contemporaneous employment of the older Cyclopean style with the use of squared blocks, the judicious selection of local and foreign material, and the combination of solidity with elegance bear witness to the fullest development of Mycenæan architectural science.

Other Researches.

Professor Halbherr's brilliant discovery of another Mycenæan palace at Hagla Triáda (more correctly Hagia Trias), a few miles to the west of Phæstos, may be described as the sensational event of the past season. The palace stood on a picturesque hill top overlooking the alluvial plain. The excavations have yielded results which give promise of a rich series of discoveries during next year's campaign.

To the researches carried out by Miss Boyd at Gourniá and by Mr. R. C. Bosanquet at Palæócastro only a few words can be allotted, though both are deserving of a fuller description. Many interesting objects have been discovered, and, what is more important, a sensible addition has been made to our knowledge of Mycenæan domestic architecture

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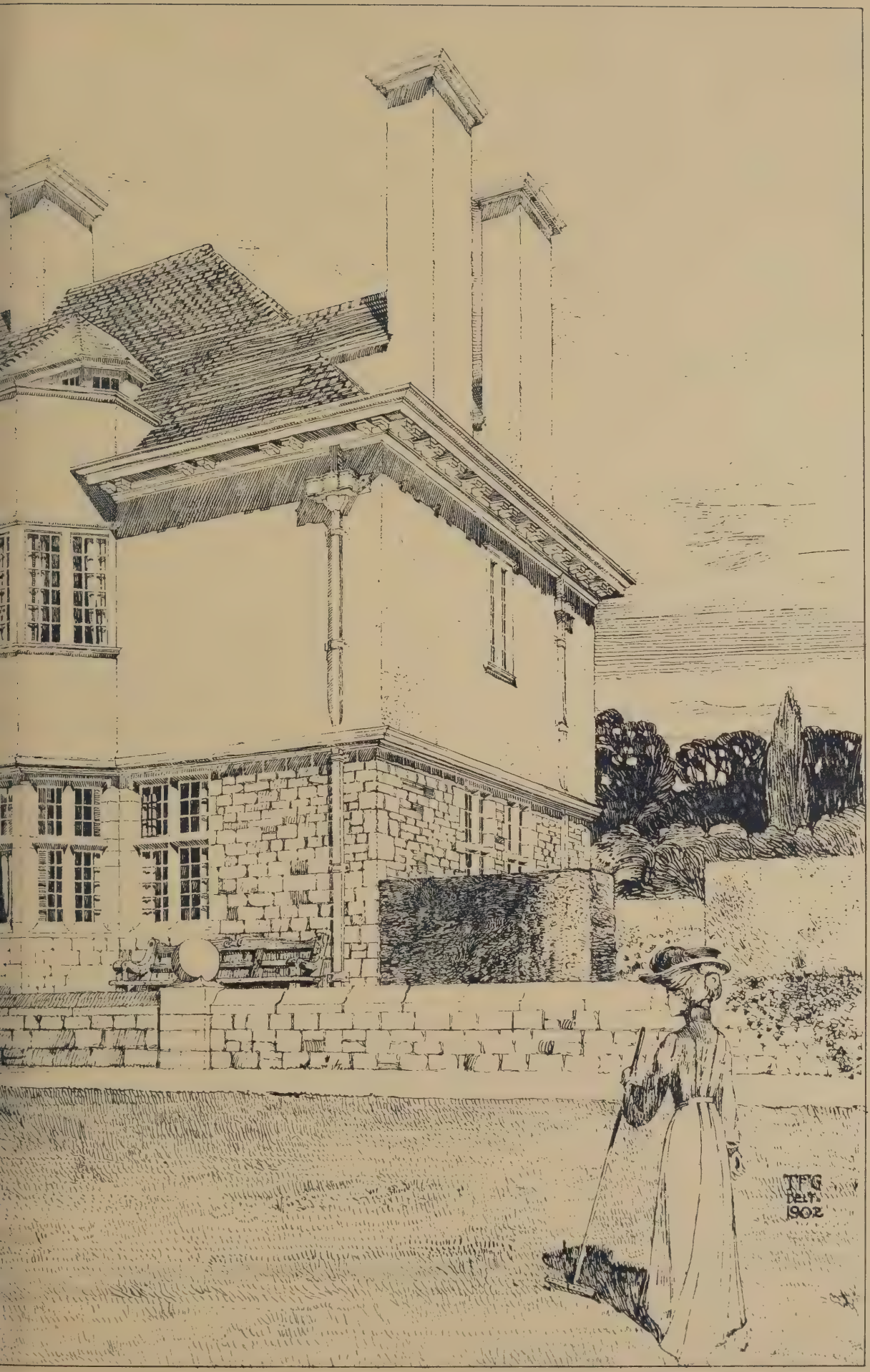


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T. Hare, F.R.I.B.A., Architect.

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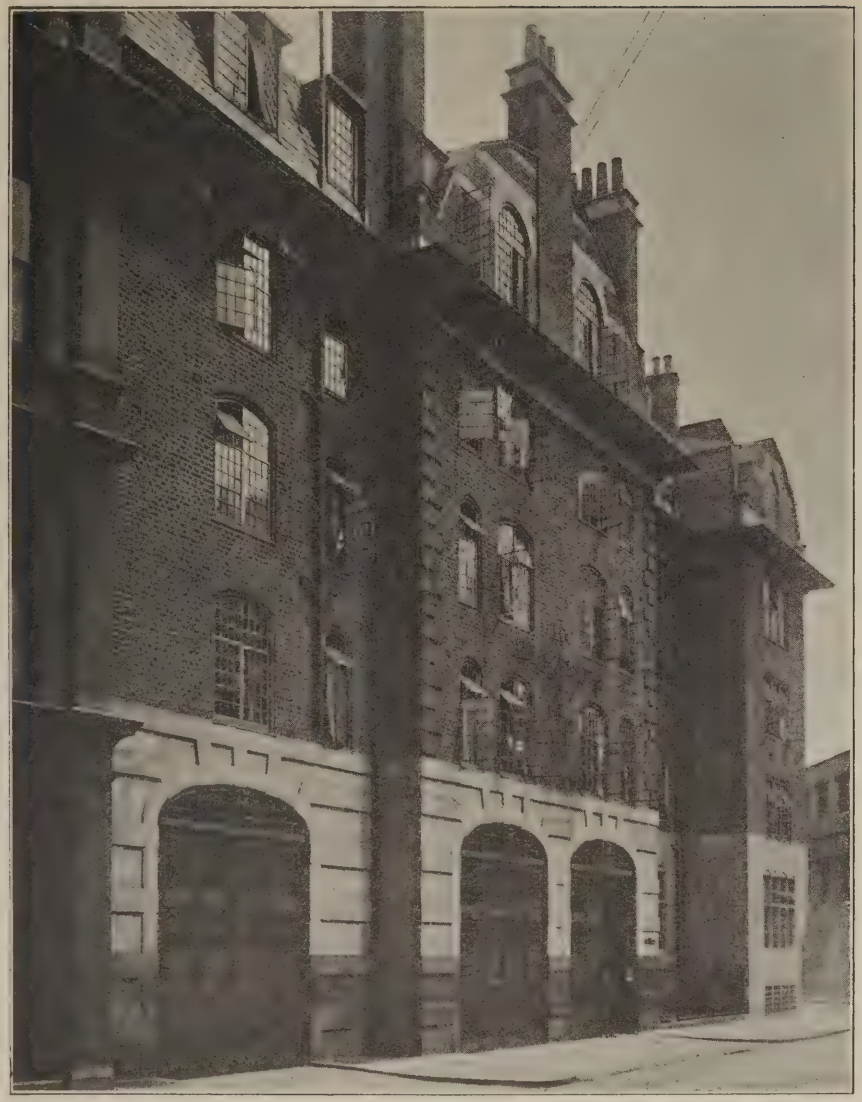
LLOYD'S REGISTRY, FENCHURCH STREET E.C.
T. E. COLLCUTT F.R.I.B.A., ARCHITECT.



BRITISH LINEN COMPANY'S BANK, THREADNEEDLE STREET, E.C.
J. MACVICAR ANDERSON, F.R.I.B.A., ARCHITECT.

(Illustrating the Article on "Recent Street Architecture in London," see p. 2.)

Supplement to
THE BUILDERS' JOURNAL AND ARCHITECTURAL RECORD,
Wednesday, August 20th, 1902.



FIRE STATION, REDCROSS STREET, E.C. L.C.C. ARCHITECT'S DEPARTMENT.



NO. 5, NEWGATE STREET, E.C. C. STANLEY PEACH F.R.I.B.A., ARCHITECT.

(Illustrating the Article on "Recent Street Architecture in London," see p. 2.)

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owing to the excellent preservation of some of the buildings.

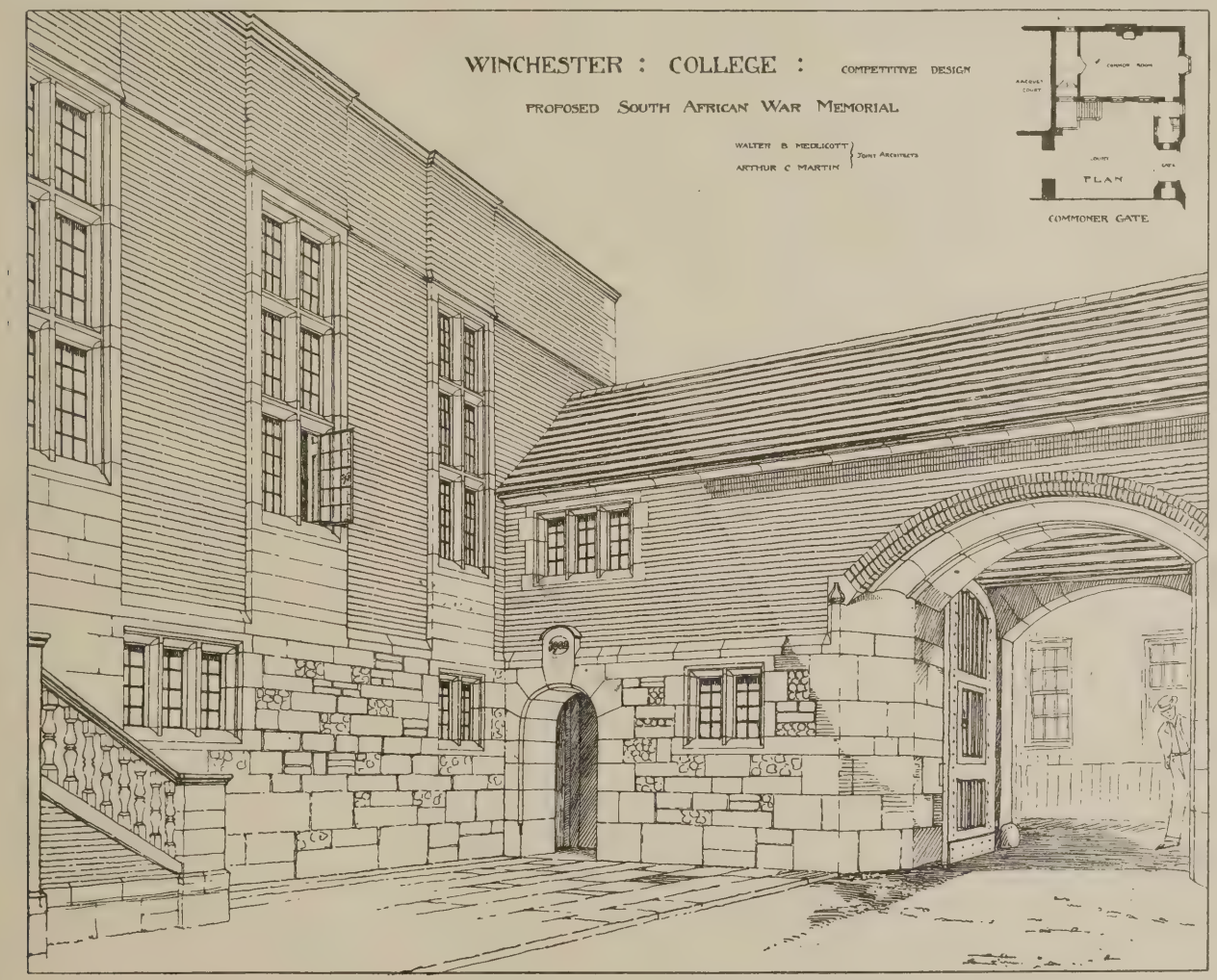
The excavations at Palæócastro will be continued next year should the requisite funds be forthcoming. For the works carried out by Mr. Bosanquet this season the modest sum of £150 was all that was available. It must be remembered that while foreign Governments liberally support their several scientific missions in Crete and elsewhere, British archæological enterprise is entirely dependent on voluntary contributions.

ANOTHER FIRE-TEST.

A NEW FIRE-RESISTING MATERIAL.

ON Wednesday last some fire-tests were made at the works of the British Uralite Co., in the neighbourhood of Higham and Rochester, Kent. The material was invented by Colonel Imchenetsky, of the Russian Artillery, and about two years ago the company secured the right to manufacture it in this country. The main ingredient of the substance is asbestos, which is sent from Canada, the United States, and Ural mountains in Russia. This is cleansed and afterwards mixed with water and chalk, as a binding agent, into a pulp similar to that of paper pulp. The pulp is rolled into sheets. The sheets thus formed are cut into the sizes required, pressed and dried, leaving boards of fibrous asbestos. These boards are steeped in a solution of silicate of soda; the water is driven off by drying, and they are then dipped in a solution of bicarbonate of soda and again dried. The technical application consists of the impregnation of the asbestos board by silicate of soda and its subsequent decomposition by bicarbonate of soda. This is accomplished by regulating the strength of the two solutions so as to ensure the complete impregnation of the whole of the board by the two chemicals, which are of mineral character. In this way the time of deposition is determined, and, after a sufficiency of the colloid silica is deposited over the fibres of the asbestos, it is gradually dried until the 75 per cent. of water, natural to freshly formed colloid silica, is driven off, leaving a hard dense substance which attaches itself as a cement to the asbestos and thus forms a homogeneous mass incapable of lamination, with no planes of cleavage, and fire-resisting to a high degree.

In order to carry out the tests a small house, a hut and a platform were utilized. To the test-house were fixed four doors. One door was constructed with two oak boards ¾in. thick. Next to the timber was a steel armour plate and over all was a covering of Uralite. The second door, suitable for inside use, was built of two sheets of hard Uralite running through the centre of the door and forming panels. The framework consisted of timber laid on either side. A door for warehouse purposes consisted of a thickness of soft Uralite in the centre and oak on either side. Next to the timber was fixed a thickness of soft Uralite, and the whole was covered by a layer of hard Uralite. The stiles of the other door were constructed of oak 1½in. thick, and the panels were filled in with Uralite mortar thoroughly dried. The timber was covered all over with soft Uralite and on that a steel armour was fixed. The whole was covered by hard Uralite. In each case the materials were fixed together by means of nails. A fire was lighted inside the house and the doors were shut. The highest temperature reached was 2,350 degs. Fahr. After the test, it was found that in each case the doors had resisted the fire. It is interesting to note, however, that in the case of the second door practically all the wood outside was burnt off leaving the outer layer of Uralite uninjured by the severe heat. The fire was burning for an hour. In the hut was fixed a deed-box made of Uralite and wood, and in the box were placed some papers, a book and a crucible containing paraffin wax. After being subjected to an external heat of 2,030 degs. Fahr., the papers and book were not in the slightest degree charred. The wood nearest the fire was charred right through, but the middle layer of Uralite was sound and the paraffin wax had only melted. The platform was 12ft. long and 6ft wide; it was built of wood, but one-half was covered with Uralite. After the fire had burnt underneath it and had reached 2,270 degs. Fahr., the unprotected portion was completely destroyed, but that covered with Uralite was whole and strong enough to stand the weight of a man.



Proposed War Memorial, Winchester College.—This scheme was for a new "Commoner Gate," with which was combined a common-room for those possessing caps for cricket, football, &c., to be parallel with the prefects' common-room already existing. In this room the names of all who served at the front were to be inlaid in the oak panelling, the names of those who had fallen also being placed in the chapel or cloisters. Underneath were provided an armoury for rifle corps and the armourers' quarters, which were to serve also as a porter's lodge. The materials were to be small bricks, stone dressings, and stone and flint base to match the existing old "Meads" wall forming the south side of the small court. Messrs. Walter B. Medlicott and Arthur C. Martin were the joint architects. The drawing was hung in this year's Academy Exhibition.

Keystones.

The Portland Stone in Newgate Prison is to be re-used in the building of the new Session House.

A New Hospital at Aldershot has been erected at a cost of about £2,600, with an additional £100 for laying out the grounds. The architect was Mr. T. Davison, A.R.I.B.A., whose plans were selected in open competition.

A New Sunday School at Tuebrook is being erected in connection with Christ Church in Buckingham Road. The building will accommodate 250 scholars. It will be of brick, with class-rooms, in addition to a large main room. Mr. Harding is the architect, and the builders are Messrs. W. Caird & Son. It will cost about £400.

An Ecclesiastical and Educational Art Exhibition is proposed to be formed in connection with the forthcoming Church Congress at Northampton. If any of our readers care to lend any objects of interest they should send a short description of them as early as possible to the Rev. J. E. Hopkins, hon. sec., St. Edmund's Vicarage, Northampton, so that arrangements may be made for their proper display.

The Colonies and the Victoria Memorial.—The Colonies have intimated their intention of contributing handsome sums towards the National Memorial in commemoration of Queen Victoria in the capital of the Empire. The total contribution of the self-governing Colonies alone will probably exceed £100,000. Already for this purpose Canada has promised a contribution of £30,000; Cape Colony, £20,000; New Zealand, not less than £15,000; and Natal, £10,000.

A New Sunday School at Askam has been erected in Beach Street. The building gives accommodation for about 200 children. It is built with Askam bricks and roofed with Kirkby slate. The building is divided into three class-rooms with swivel partitions. There is also a separate yard for boys and girls, with an underground cellar and heating chamber combined. For special occasions the largest class-room can be thrown into the chapel, and 100 more persons would thus be found seating room. The architect was Mr. Richardson, of Dalton. The contract has been well carried out by Mr. George Martin, of Dalton.

Chelsea Polytechnic Examination.—The result of the examination of the University Extension Lecture on the History of Architecture, held at the Chelsea Polytechnic last session has just been announced as follows:—J. G. Wiles, G. Wilson and A. C. Goulder gain certificates of distinction, and then follow H. Stewart, J. Henry, R. Crosthwaite, E. Heath, G. Gifford, A. Cooke, F. Hedges, H. Hèlin, E. Fowler and E. Topping. The lecturer was Mr. Banister Fletcher, A.R.I.B.A., and the examiner was Professor W. R. Lethaby, of the Royal College of Art. The lectures will be continued next session, the first being given on Monday, October 6th, at 7 o'clock.

Manchester Royal Infirmary: Proposal to sell the Piccadilly Site.—It is now proposed that the Board of Management of the Manchester Royal Infirmary be empowered to again negotiate the sale of the entire Piccadilly site and buildings to the Manchester Corporation for not less than £400,000; and, in the event of the City Council again refusing to purchase, that the Board be authorised to offer the site (with the sanction of the Charity Commissioners and subject to Act of Parliament) for sale publicly to the highest bidder, with a view of applying the proceeds to the erection of a new infirmary of adequate accommodation and equipment on a suitable site elsewhere.

Mr. Carnegie's offer to make a grant of £800 towards building and fitting up a public library in Criccieth, Carnarvonshire, has been accepted.

A New Parish Hall at Chirk is being erected by Mr. J. Stringer, of Sandbach, from the designs of Messrs. Greyson & Ould, of Liverpool.

To Commemorate the Coronation of their Majesties the King and Queen a stained-glass window is to be erected in the parish church at High Wycombe, known as the "Cathedral of Bucks," being the largest church in that country.

The North-West Tower of Westminster Abbey having been restored, the Dean and Chapter have now commenced the repair of the lancet and trefoil window west of the recessed portico arch on the north side, which is fretted with age and the effect of atmospheric action.

Westminster Abbey is closed to-day to the public to allow the Office of Works to proceed with the removal of the temporary erections inside and outside the building, and the taking down of the annexe during this week. The Abbey is to be restored to the custody of the Dean and Chapter by the first Sunday in October.

Albert Chapel, Windsor.—Mr. W. G. Stoneham, writing to the "Windsor Chronicle," calls attention to the fact that a creeper obliterates the beautiful tracery of the east end of the Albert Memorial Chapel. "Not only is this modern creeper rapidly covering this beautiful structure, but ivy is allowed slowly but surely to effect the same object, with the difference that the ivy is prominent winter and summer, while the leaves of the creeper fall in winter."

Failure of a Derby Architect.—The first meeting of the creditors of Mr. Frederick Charles Coultburst, architect and surveyor, of Derby, was recently held. The debtor was stated to have been in partnership with Mr. F. K. Booty until July, 1900. His statement of affairs showed that there were thirty-five unsecured creditors against his separate estate, whose claims amounted to £343 2s. 11d., three unsecured creditors against the late partnership amounting to £1,581 9s. 1d., and one partly secured creditor of £74 10s. 8d., which, less the estimated value of the securities (£50), amounted to £24 10s. 8d. The total liabilities expected to rank for dividend were £1,949 2s. 8d., and the assets amounted to £1,354 5s. After making deductions for distrainable rent, rates and taxes, a deficiency of £545 9s. 1d. was left. The debtor stated that the causes of his insolvency were losses through building property at Tunbridge Wells, and a falling off in business during the past few years.

Board School Building Construction Classes in Glasgow.—We have just received a prospectus of the evening classes in building construction that have been arranged for the session commencing Monday, September 15th at the High School of Glasgow in 30, Elmbank Street. There will be only two courses this session, first and second. A very successful feature of last session was the introduction of workshop practice in Kent Road School, which will be continued this session as a branch department of the High School, the two classes working in conjunction with one another as formerly. Mr. D. Bennet Dobson, architect, is the lecturer, and is assisted by Mr. James Barron. The teacher in the practical department is Mr. John Rennie, joiner, assisted by Mr. James M'Lean, joiner. The fees are 8s. 6d. for each course, which extend over a period of six months. Visits of inspection are arranged to principal buildings in course of erection and works in progress. Further particulars can be obtained from the Clerk for the School Board, 129, Bath Street, Glasgow.

A Granite Memorial in Victoria Park, Portsmouth, has been erected by the crew of the "Centurion" to their shipmates who fell in the Boxer rising in China.

A Memorial Brass has been erected in St. David's Cathedral in remembrance of those who died in connection with the Welsh Hospital in South Africa.

East Meon Church.—At the bottom of the third column on p. 410 of our issue for last week, eighteenth was printed instead of *thirteenth* century as the date of the Lady Chapel.

A New Workhouse Infirmary at Stockport is to be erected at Stepping Hill. The estimated cost of the new infirmary is £40,000, and the plans provide for fifty-eight beds, with an administration block.

Two Oldham Competitions.—In the competition for a new market hall and shops the design of Messrs. Leeming & Leeming, of London, has been placed first; that of Messrs. Winder & Taylor, of Oldham, second; and Messrs. A. Neill & Son, Leeds, third. In the competition for public baths, &c., the designs of Messrs. A. R. Groome & Grant, of Manchester, have been placed both first and second, and that of Messrs. H. Cheetham & Barlow, of Oldham, second.

Cardiff University College.—A meeting of the sub-committee of the Building Committee in connection with the new buildings of the University College of South Wales and Monmouthshire was held last week. After a long discussion it was decided to select the architect from the following four—Mr. Basil Champneys, Mr. W. D. Caröe, Mr. Marshall and Mr. John Belcher.

A Church Competition.—The competition recently held for the London Baptist Association Church, Mitcham Lane, Streatham, S.W., has been decided in favour of design marked "New Era," by Messrs. George Baines, F.R.I.B.A., & R. Palmer Baines, 5, Clement's Inn, Strand, W.C. The first portion of the buildings, which includes the nave, tower, vestries and temporary apse, is to be at once proceeded with. The estimated cost of the complete block is £5,238 without tower.

At Basing House, Hampshire, Lord Bolton, the owner of the ruins, has lately been excavating with a body of workmen, and has made some interesting discoveries. These comprise a gateway, the foundations of a turret with spiral staircase, a finely carved classic head, with moulding in excellent state of preservation, and a number of grotesques, which probably ornamented the house and grinned down at Queen Elizabeth and Cromwell. The foundations are so massive that it is tempting to conjecture that a grand hall of the old house once stood above them.

Glasgow School of Art.—The prospectus for next session contains little that is new. We note that there were 114 architectural students among the 723 attending the school during last session, and that ninety works in painting, sculpture and architecture were contributed by the school to the last exhibition of the Glasgow Institute of Fine Arts. Two bursaries of £10 each are offered to architectural students, and the Glasgow Institute of Architects offers two prizes (one of £3 3s. and the other of £2 2s.). There is also the "Alexander Thomson" travelling scholarship of the value of £60, offered every third year for competition among architectural students. The next competition takes place in 1905, and particulars of it can be obtained from the secretary to the Trust, Mr. C. J. MacLean, 115, St. Vincent Street, Glasgow; while any further information about the Glasgow School of Art can be had on application to the secretary, Mr. E. R. Catterns, 167, Renfrew Street, Glasgow. An exhibition of students' work will be held in the Royal Glasgow Institute of the Fine Arts from November 4th till November 17th next.

Bricks and Mortar.

Aphorism for the Week.

When architecture has arrived at such a stage of perfection that it is sanctioned by the approval of ages, any important change in it is scarcely admissible, neither is it easily effected; all the advice, therefore, to the artist . . . to emancipate himself from the trammels under which he is said to be labouring is absurd. GWILT.

Our Plates. THE drawing of the House at Oxford, designed by Mr. Henry T. Hare, F.R.I.B.A., was exhibited in this year's Royal Academy. A plan of the house is given on this page.

Ely Place. ELY PLACE, Holborn, is undergoing a small transformation so far as concerns a portion of its buildings, and the demolition of some old houses on the east side has revealed in the northern wall of the church of St. Etheldreda (sometimes called St. Audry) several architectural details of great beauty. This edifice is part of the ancient palace of the Bishops of Ely, and looking at the locality now one can scarcely imagine that not so very long ago it was famous for its orchards and lawns, of which the only relic remaining is contained in the name of the adjoining thoroughfare, Hatton Garden. The four windows which the present changes have uncovered are Gothic in style, with below them a set of smaller lights for the crypt. They were hidden by the flank wall of the adjoining house, and in a few months will no doubt be again concealed by the block of modern offices that is to rise on the site now being rapidly cleared. The beautiful and interesting church, is now a Roman Catholic place of worship.

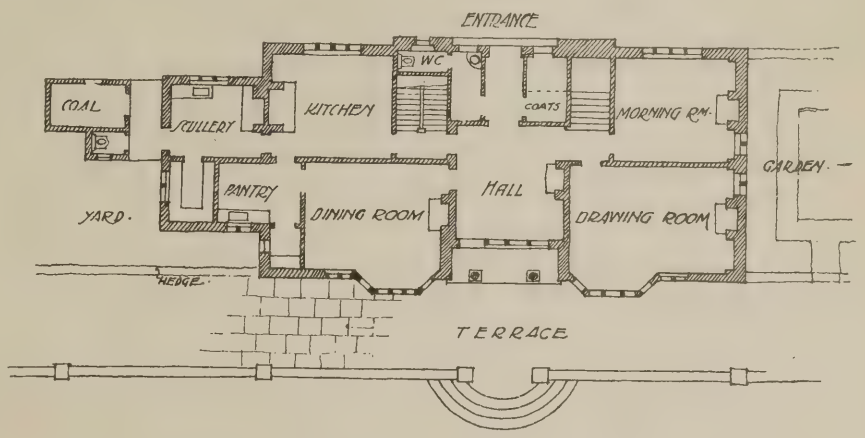
Campaniles in England. THE recent disaster at Venice brings to mind the fact that detached belfries or campaniles were never very popular adjuncts to churches or cathedrals in this country. One of the few now left is that at Chichester, which stands in the north-west corner of the cathedral churchyard. It is a square massive structure in accord with the two western towers. There was formerly a bell-tower to the south-west of Salisbury Cathedral; it was of no great height. It was standing in the Eighteenth Century, and was pulled down for no earthly reason save sheer vandalism. Long years ago there was a campanile in the burial-ground of old Winchilsea Church, but no drawings of it exist. Of late years one or two detached towers have been erected in connection with new parish churches, as at Wilton, near Salisbury. In some cases the tower stands apart but connected to the church by a short cloister, and thus becomes semi-detached, as, for instance, that of St. James-the-Less, Westminster.

A Sky-scraper for Johannesburg. THE projected erection of a sky-scraper at Johannesburg, to be followed no doubt by other similar erections in the future, may be regarded as a Yankee triumph. The innovation has already brought a good deal of grist to the American mill in the shape of orders for steel building material, and in the event of Messrs. Eckstein's example being followed by other South African companies to any marked extent, the result will necessarily be a great stimulus to American trade. For the construction of steel-framed buildings is, of course, a peculiarly American industry. The building is to be nine storeys high, and it is calculated that its construction will occupy about two years. The complete steel framework of the building will be erected first. It is to be faced with white stone on the sides towards Commissioner Street and "'Tween Chains." The frontage towards each street is 103ft. in length. The general style of the architecture will be a free Classic treatment. The front towards Commissioner Street will have an imposing entrance. Above it on the level of the second floor there will be a stone balcony projecting about 4ft., which will be carried round the two frontages of the building. On the eighth floor level will be a bold cornice. The Commissioner Street front will be surmounted in the centre by a circular domed tower, bearing a flagstaff, whose "mast head" will be some 150ft. above pedestrians in the street below. Each angle of the building will be adorned with square projecting blocks. The frontage facing the Chains will be treated similarly to that towards Commissioner Street. The ground plan of the entire structure will be shaped like an H. The number of offices in the entire building will be over 200. Messrs. Leck & F. Emley are the architects.

Buildings in Kew Gardens. AMONG the fanciful buildings which Sir William Chambers (the architect of Somerset House) erected in Kew Gardens were the Alhambra and the Mosque, both frail structures which have long since disappeared. Of the buildings that remain, the Orangery, constructed in 1761, is now Museum III. The initials of the Princess Augusta were affixed to the building by William IV., "in grateful remembrance of her who laid the foundation of the surrounding scenes." The Pagoda was put up in 1762. All the angles of the roofs and the storeys were at the time adorned with large dragons, eighty in number, covered with a kind of thin glass of various colours, which produced a most dazzling reflection. Everybody knows the dragons are no longer there.

Swanscombe Church struck by Lightning. THE tower of the Parish Church of Swanscombe, Kent, was struck by lightning last Thursday afternoon. The lightning conductor failed to act, and the interior woodwork was set on fire. The volunteer fire-brigade was able to save the chancel, but in a little more than an hour the shingled spire on the low squat tower had fallen into the churchyard. The floor of the nave was then covered with smouldering timbers fallen from the roof. Authorities are not agreed as to the precise date of the church. Watling Street runs through the woods near the rectory, and Roman flat tiles are built into the tower, in the courses of squared stones at the corners with some degree of regularity, but scattered sparingly through the flints of which the bulk of this structure is composed. It is said that a church existed here as early as the sixth century, and that the present structure is the only Anglo-Saxon church in Kent. On this point authorities are not quite agreed. The tower is probably Transition-Norman, the basal portion being older than the upper part, in which windows of later date have been inserted. In the lower part, on the south side, is a double-splayed, round-headed window, ascribed to the time of Edward the Confessor. But as the splays are formed with Roman tiles of a similar character to those in the corner courses of the tower, which seems to date from after the Conquest, it is doubtful if this window can justly be claimed as Saxon work. The chief portion of the fabric is Early English, with later insertions. The nave has a clearstory, and north and south aisles, from which it is separated by arches on each side, the pillars resting on circular piers, and having octagonal capitals.

The Damage Done. THE tower has been completely gutted, the two floors having been burnt out, and the peal of six bells, cast in 1749, have either been melted or buried under the mass of fallen timber. The nave is open to the sky and the floor covered with charred beams, seats and books. The chancel and organ are intact; but the fine old Norman font, formed of a block of solid chalk, and ornamented with emblems of the Evangelists had been shattered, probably from the combined effects of fire and water. The carving has been defaced, and this is said to have done by Cromwell's soldiery. The relics of the old faith still remain, and have not suffered from the fire. The uninjured wall of the south aisle shows the stairs that led to the rood-loft; the piscinas stand in the chancel and the aisle chapel, and a small opening—perhaps an aumbry, though locally believed to be a "lepers' window"—blocked up on the outside, remains in the south wall of the chancel. But the oak screen, formed from the ancient rood-loft, has perished: though by no means comparable to the finer work still remaining in Norfolk, it was of considerable merit. The old glass seems to have gone long ago. Only one piece remains—a shield of arms in the south aisles. The church plate and registers, dating from 1559, have been saved, and the latter, though somewhat damaged in the bindings are quite legible. Little damage has been done to the Weldon monuments, the chief of which is the tomb to Sir Ralph Weldon, officer of the household to Elizabeth and James I. It is of the usual Renaissance type, with effigies of the Knight and his Dame on the top, and of their children (three boys and five girls) on the front. The tomb of Sir Erasmus Wilson, at whose cost the nave and aisles were restored some years ago, is untouched. The oldest parts of the church have suffered least. The skeleton of the structure seems as sound as ever; outwardly the tower shows no marks of damage, and the remarkable window, claimed as Saxon, escaped altogether.



HOUSE AT OXFORD: GROUND PLAN. HENRY T. HARE, F.R.I.B.A., ARCHITECT.

MEASURING-UP BUILDINGS.—I.

By ROBERT W. CARDEN, A.R.I.B.A.

A QUERY on this subject recently appeared in the Enquiry column of the BUILDERS' JOURNAL and was briefly answered. It is thought, however, that the following notes enlarging upon the methods employed may be found of assistance to junior members of the architectural profession:—

There are, as "G. A. T. M." pointed out, practically two methods in use—firstly, that of plotting to scale on the spot with or without the dimensions figured on; and, secondly, that of constructing an approximately correct plan and then figuring all sizes upon it. The first method is open to many objections, and is in no way to be recommended, for in order to ensure any degree of accuracy the building to be measured must be plotted to a large scale, say ½in. to 1ft., and this immediately becomes impracticable in buildings of any size larger than the simplest of cottages. Thus in all probability the building would be plotted at most to ¼in. scale, and to this scale it is impossible to measure accurately down to ½in., so that errors are bound to occur. It therefore becomes necessary to figure on every dimension as well as plotting it to scale on the spot, and much valuable time is thus consumed. It is far better to adopt the second method. An approximate plan is easily procured by using square ruled paper, pacing the lengths of the walls and jotting them down roughly to a scale in which each pace is represented by three or four squares. With this as a basis, all that is required can be measured with the tape or rule and set down on the plan.

Before proceeding to discuss the actual methods of entering the measurements on the plan, it will be advisable to mention a few of the stumbling blocks which almost invariably are to be found in surveys of this class. To a beginner it is natural to assume that a square-looking room *is* square, but experience has taught the writer that it is fatal to *assume anything*, and that for every hundred assumptions made ninety-nine are wrong and entail partial or complete remeasurement. No room should be taken as foursquare until the diagonals have proved it to be so. Diagonals should be taken wherever possible, and every main point should be fixed by three dimensions which meet at one point, the first two settling the position of the point and the third proving it to be correct. Place no trust in old plans, which officious caretakers sometimes unearth from the dusty and dirty recesses of the basement, until you have checked every point on the plan by the building itself, and at least certified the accuracy of the leading dimensions. Note also whether alterations have been made since the plan was drawn. Very much will be found to depend upon the object for which the survey is required. If it is a factory to be altered for the purpose of adding new machinery it may probably only be necessary to note the position of the supports which will carry the plant, the position and heights of windows past which the shafting will be carried, and the positions of girders and joists when the belting connects machines on two floors. Again, the survey may be required as a record of buildings to be destroyed. In this case more detail and minuteness must be shown in the plans, for after all the lengths of walls have been settled in gross each room must be taken separately, and every feature recorded with its height, breadth and depth, and in some cases even the mouldings and state of repair.

There is still another class of measuring-up work which must be considered—measuring for dilapidations and repairs. In this case the work is proceeded with much as above stated, but a final survey of every part is necessary in which the condition of every article in the building is examined and all defects noted in a large note-book. Take, for instance, one large bedroom in an ordinary house which has fallen into considerable disrepair through standing empty or other cause. See that the door hangs properly on its hinges and has not dropped; see that the door has both handles in good repair, that the lockspring acts properly, and that the finger-plates are as they should be. See to the panes of glass in the windows and note those which are broken, examine sash-fasteners, lifts and pulls, and test the sashes to see if they are jammed and whether the cords are good. It would take up too much space to enumerate every one of the thousand points to be examined, but enough has been mentioned to show the lines upon which a dilapidation survey should be conducted.

The illustrations accompanying these notes form part of an actual survey of twelve terrace houses in Devonshire built of rubble, and they will show at a glance the absolute necessity of diagonals. Although appearing rectangular, there is scarcely a right angle on the whole of the premises. The rough plan was prepared as already described, but it will be noticed that the angles are sketched as right angles. It should be mentioned that this survey was made in order to form the basis of alterations, and as the windows were not to be interfered with there was no need to measure them in detail. First of all, each main wall was measured for its whole length with the tape, and the dimension entered on the plan a considerable distance from the wall dealt with and extended by means of dimension lines so as to indicate the whole space included in the measurement. When these main sizes were settled, the minor portions were measured with the five-foot rod, each wall being worked round from corner to corner in an unbroken succession, each dimension figured on close against the portion referred to, and each entry made on the plan, so to speak, facing that portion. With the adoption of this system the smaller dimension lines are rendered unnecessary and the plan is kept less "muddled" than is often the case. It should also be noted that the smaller dimensions are recorded at the same time in the margin and totalled up so as to check their agreement with the gross measurement, thus:—

23ft. 2in. = 2·10
1·11
6·9
4·7
·8
6·5
23·2

If this or a similar system be not adopted, it is impossible to ensure accuracy and to be certain that no dimension has been omitted. The position of the octagonal post could have been ascertained merely with ties from any two of the four points, but obviously there would have been no certainty had not the third dimension been taken, which also tallied and checked the accuracy of those previously recorded. These lines are much the same as diagonals. It is usual for surveyors to enter the diagonals across the plan, as being most easily seen, but they complicate the sketch to such an extent that it often becomes impossible for anyone but the surveyor himself to draw out the correct plan. It will be admitted that a system by which *anyone* can with ease interpret another's handiwork is much to be desired. The author is in the habit of lettering all the angles from which ties are required and entering the diagonals in the margin, as may be seen from the illustration. The line A C was produced to B, and the spot marked in chalk on the wall, and this line A C B formed the base-line of the survey. The building not being rectangular, the first point to fix after the base-line was E. A E, C E and B E were then measured, and as the three lines met in

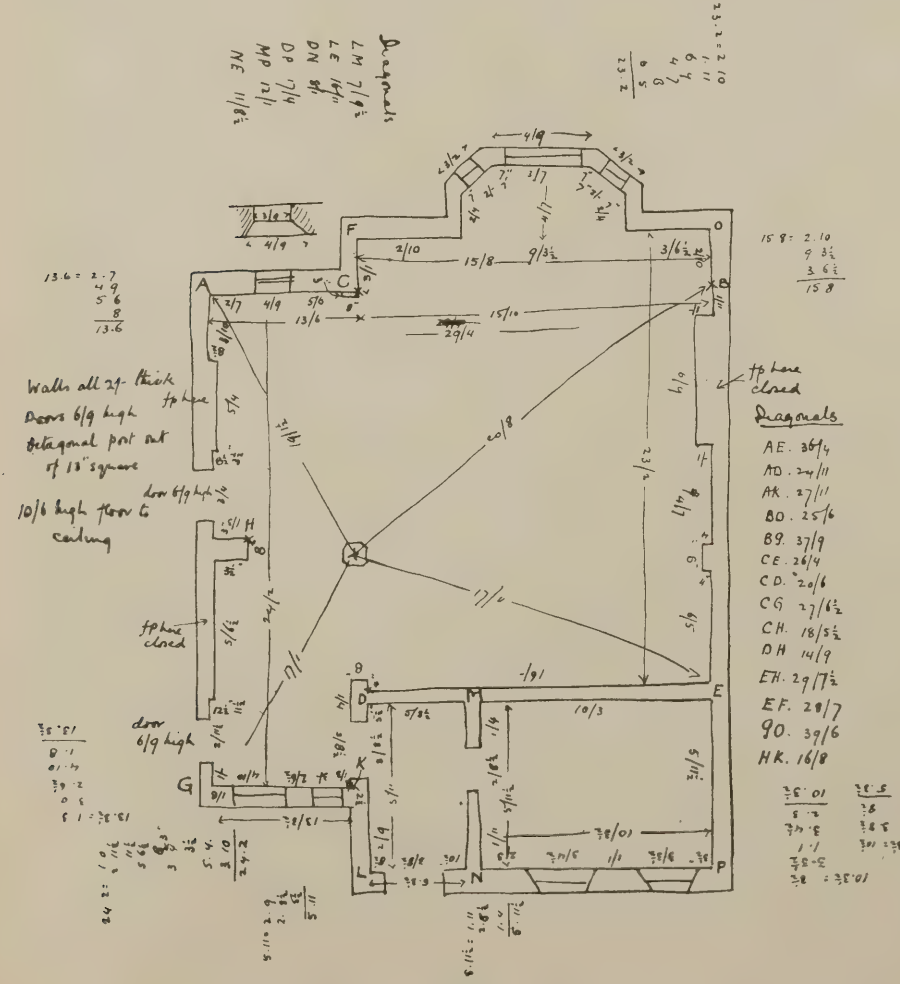


FIG I.—THE ROUGH SKETCH.

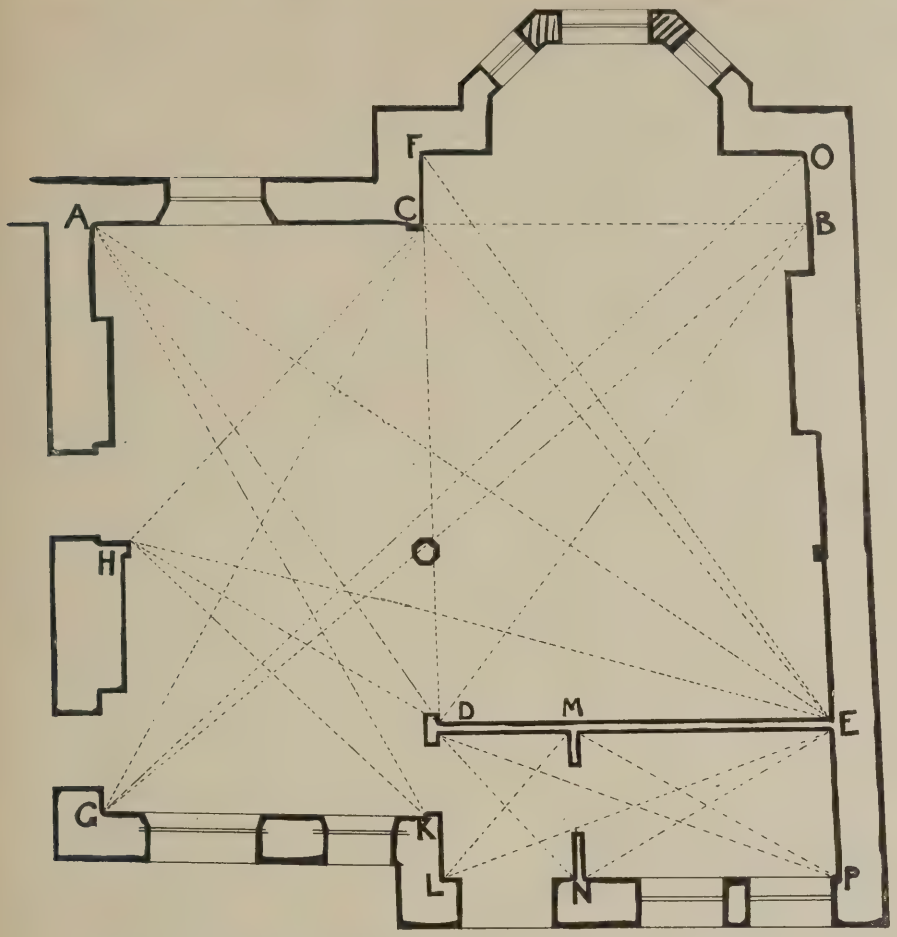


FIG. 2.—THE SAME DRAWN TO SCALE AND SHOWING DIAGONALS.

one point the situation of E was settled beyond question. Similarly BD, CD and AD fixed D, and the same principle disposed of the other points.

To do this class of work rapidly a staff of three will be required, one entering the dimensions on the sketch plan, which, for convenience, is mounted on a small drawing-board, and the other two manipulating the tape and calling out the measurements, which should be repeated aloud by the man with the board to ensure accuracy. Generally, when the greater dimensions have been taken one assistant will be left free, and in the case of dilapidation surveys he can be profitably employed in making the notes as above described for necessary repairs. The other two workers will proceed to take the details with a five-foot rod, and they should be entered on the plan as already described "facing" the corresponding features. It will be noticed that all the dimensions on the plan given are entered as shillings and pence. This is far quicker than employing the more usual dots for feet and inches, and quite as clear, if not clearer. Finally, it must be urged that it is far better to take too many dimensions than too few, that it is unsafe to make assumptions, and that it is essential that every point should be definitely fixed by at least three dimensions concurring at that point. The second illustration shows the same premises correctly drawn to scale, with the diagonals dotted on it. The "right angles" are angles of 87½ and 92½ degrees alternately.

(To be concluded.)

A New Chapel at Llandudno for the Siloh C.M. Church is to be erected from plans by Mr. G. A. Humphreys, architect. Mr. Edward Thomas, Chapel Street, Llandudno, will probably be responsible for a part of the building, while Mr. Luther Roberts will take the main contract.

Correspondence.

The Price of Sheet Lead.

To the Editor of THE BUILDERS' JOURNAL.
LONDON, S.W.

Sir,—On p. xvi of your issue for August 6th the pride of sheet lead is quoted at £13 5s. per ton, *i.e.*, 13s. 3d. per cwt., but on p. 407 of the same issue in the article on "Building Notes and Memoranda" it is priced at £1 6s. per cwt., 6s. of which is the cost of labour. There is thus a discrepancy of 6s. 9d. per cwt. between the two prices for the material which I do not understand how to account for, and should be glad of an explanation.—Yours truly, FRANK J. WALLER.

The prices of building materials given in THE BUILDERS' JOURNAL every week are the current market or wholesale trade prices quoted by the merchants, and are exclusive of carriage, cartage or delivery. These rates therefore represent the wholesale prices paid by the builder to the merchant, without any allowance for carriage, profit, &c. In "Building Notes and Memoranda" the price of 20s. per cwt. (*i.e.*, 26s. less 6s.) represents the builder's selling price of sheet lead delivered where required, and in such quantities as may be required after providing for carriage, cartage or delivery, waste in cutting to size, establishment charges and profit.

T. E. COLEMAN.

Mr. Atwood Slater as a Swimmer.—At Marazion Mr. J. Atwood Slater, the well-known designer, of Bristol, swam completely round St. Michael's Mount, Cornwall; the distance of one mile and a half being accomplished in three-quarters of an hour. Mr. Slater is a Royal Academy exhibitor, and the designer of the subject panels in the reredos of the neighbouring cathedral of Truro.

Law Cases.

Glasgow Buildings Regulation Act: Important Decision.—Mr. R. W. Forsyth, warehouseman, Renfield Street, Glasgow, with the consent of Mr. Stuart Cranston, tea merchant, Buchanan Street, Glasgow, recently presented a petition to the Dean of Guild Court for authority to enlarge his warehouse by carrying out his basement flat to the centre of Renfield Lane. Mr. Forsyth is the proprietor of the property in Renfield Street lying to the south of that lane, and Mr. Cranston of the property lying to the north of the lane. Renfield Lane is a private street, and the boundaries of Mr. Forsyth and Mr. Cranston's properties meet in the centre of the lane. The petitioners in the application to the Court submitted plans showing a retaining wall in the centre of the lane, half on both properties, with a channel on the top to carry the water, gas and other pipes. The petition was opposed by the Master of Works on the grounds which are set forth in the following note by the Lord Dean of Guild (Dr. Gourlay), who finds that the petitioner is entitled to make the alterations and enlargement as proposed, the Master of Works being liable in expenses:—The Master of Works objects to the petitioner putting his property to the proposed use, and maintains that the petitioner is not entitled to carry out his operations without the consent of the Corporation. The only argument in support of this contention was, that section 20 of the Glasgow Buildings Regulations Act, 1900, provides that "the Dean of Guild shall not, without the consent of the Corporation, grant decree for the erection or re-erection of any building upon ground adjoining any street unless on the condition that one-half of the width of such street, measuring such half from the centre of such street towards such ground, shall be cleared of all structures, if any, existing thereon, and shall, subject to the provisions of the Police Acts, be wholly dedicated to the public for street purposes"; that a main street purpose is drainage; that if the petitioners' operations were allowed it would be impossible to carry sewers through Renfield Lane; and that Renfield Lane would no longer, in the words of section 20, be wholly dedicated to the public for street purposes. It is not contended that the property of the ground or of the subsoil has passed to the public, or to the Corporation, or that, to take an illustration, if there were minerals in the ground, the petitioner, even though he might be able to do so without bringing down the surface, could not work his own minerals. If this be so the Dean of Guild is not able to see how the Master of Works can maintain the position he takes up. Streets are no doubt the most convenient places for sewers, but the Dean is not satisfied that dealing with a private street and speaking strictly drainage is a street purpose in a question of dedication to the public. Again, it is to be noticed that the construction of cellars under public streets has been expressly dealt with by section 16 of the Act of 1900. It is said that what is there enacted with reference to public streets is by the terms of section 20 implied as to private streets. The Dean of Guild would be rather disposed to say that as the subsoil of the private street remains the property of the adjacent owner, the provision does not, and was not intended to apply to private streets. The Master of Works stated another objection. By section 65 of the Act of 1900 it is provided *inter alia* "No addition shall, without the consent of the Corporation, be made to any building of the warehouse class. . . . so that the cubical extent of any such building . . . shall exceed 350,000 cub. ft." It is admitted that the petitioner's building is a building of the warehouse class, that the cubical extent of it

as it at present stands is 690,000 cub. ft., and that the operations now proposed would add 6,700 cub. ft. to the building, giving it a total cubical extent of about 696,700 cub. ft. The Master of Works maintained that upon this ground also the petitioner cannot proceed with his proposed operations without first obtaining the consent of the Corporation. The petitioner's answer to this is that as the building already exceeds 350,000 cub. ft. the provision relied on by the Master of Works does not apply; that the fair reading of section 65 is that where a building does not in its existing state exceed 350,000ft. in cubical contents, it cannot be extended so as to exceed that area without the consent of the Corporation; but that the section does not really deal with or regulate buildings which already extend to more than 350,000 cub. ft. The Dean of Guild thinks that the section in question may quite fairly be read as the petitioner contends, and that there is nothing unreasonable in the view that by the section in question Parliament did not deal, and did not intend to deal, with buildings the cubical contents of which already exceed—it maybe largely exceed—350,000ft.



The Dean has accordingly repelled the objections stated by the Master of Works and granted the lining.

A Strike and its Consequences.—The case of *Busfield* v. *T. Taylor & Sons* was heard at Leeds Assizes last Wednesday before Mr. Justice Grantham and a special jury. This was an action to recover damages for alleged false imprisonment. The plaintiff is a joiner and a member of the Joiners' Union, and the defendants are joiners and builders at Bradford and members of the Master Builders' Association. The action, said counsel for the plaintiff, arose out of circumstances connected with a dispute in the joinery trade, at Bradford, which began in June or July, 1901, and resulted in a strike. The plaintiff came over from Birmingham to Bradford, but in consequence of the existing state of things the union did not permit him to work. According to his counsel's statement he took no part in the strike proceedings, and received out-of-work pay. On July 17th, 1901, he went for a bicycle ride with a man named Flatley to a place called Cottingley Bridge, and on their return they saw a crowd of men in Salem Street, in which the defendants' business premises are situated. At this time Mr. T. E. Taylor, a member of the defendants' firm, was, as it was alleged, directing the arrest of a man named Collinson. A policeman who was with Mr. Taylor asked for their names. After this they were taken to the police-station, where their names and addresses were asked for. After a short detention they were allowed to go away without being informed of the nature of the charge against them. At 1 a.m. on July 19th, 1901, the plaintiff was arrested upon a warrant which charged him with intimidating and persistently following certain workmen in the employment of the defendants. Later on the same day he was brought before the stipendiary magistrate to answer the charges, when the hearing of the case was adjourned. Eventually the charge of intimidation was abandoned, and that of persistent following was proceeded with. The proceedings occupied a considerable time. A number of witnesses were called on behalf of the plaintiff to establish an *alibi*, and in the result the charge was dismissed. The plaintiff's case was that the proceedings against him were taken upon the instructions of Mr. Taylor. In the course of his cross-examination in this action the plaintiff admitted that he was free to go where he liked, but he remained at Bradford for a year, receiving 10s. a week. He further stated that he reported himself each morning at the office of the union, but was not aware that in consequence of the strike free labourers were being imported, or that they had been subjected to any molestation. He denied that he had been engaged in picketing. Mr. Taylor, in giving evidence, said that six months before the strike began the master builders proposed to reduce the joiners' wages from 9d. to 8d. per hour. At a conference which was held an offer by the masters to refer the matter to arbitration was declined by the men's representatives. A further offer by the masters to reduce the wages to 8½d. per hour was also declined, and subsequently the union called out their men. As a result of this the Master Builders' Association imported a number of non-union men into Bradford. Trouble followed, owing to picketing, and the police had to be called in. Mr. Taylor spoke of two occasions upon which he saw the plaintiff and Flatley among the crowd who were molesting the free labourers. He informed Mr. Neill, of the firm of Messrs. Neill & Holland, Bradford, solicitors to the Master Builders' Association, of what had taken place, but he never suggested that a warrant should be taken out or a charge preferred against any one. Mr. Neill said that he received no instructions from Mr. Taylor, but acted on behalf of the Masters' Association in the matter. He was himself responsible for a warrant having been issued, and gave as the reason for this course having been adopted that he had found from experience that if summonses were taken out against the men they were usually "transferred" to other districts. Further evidence was given to show that the plaintiff and Flatley were not arrested on July 17th, 1901, but went quite voluntarily, and also to prove that in reality the two men took an active part in interfering with the free labourers. In summing up, the learned Judge said that it was a pity that the difficulties of employers should be increased by the state of things disclosed by this action. His Lordship added, referring to the plaintiff and Flatley, that two good-looking and respectable young men had, no doubt, been living in idleness for a year, taking miserable out-of-work pay rather than do good and useful work for their country; for, after all, they were injuring their country, and especially the district in question, by acting in the way they had done. In reply to a question by his Lordship, the jury intimated that they believed the account which had been given by Mr. Taylor. In the result a verdict and judgment was given for the defendants. Two other actions had been brought against the defendants for false imprisonment by Flatley and another man named Cousen. They were, however, determined by the result of Busfield's action, and accordingly in each of them judgment was given for the defendants.

A Small Cricket Pavilion.—The accommodation for the pavilion illustrated on this page embraces a large room for club meetings and teas, &c., a visitors' dressing-room with wash basin, members' dressing-room with same, kitchen for preparing tea with hatch for serving refreshments, a store for rollers, cutters' nets, &c., separate w.c.'s and urinals for visitors and members. The scorers are placed centrally under a small tower, with bell over it. A clock is provided. There is a varandah with seats on the front, and over the central part is a balcony carried on posts. The staircase to this leads from the large room. The materials are brick plinth, half timber and white plaster with wrought-iron brackets to carry eaves gutter. The roof is covered with hand-made Hartshill tiles. The pavilion, owing to the district being an open one, has been built substantially to withstand the high winds.

Views and Reviews.

Elementary Design.

The admitted aim of this book is to describe the elementary stages of practical designing, with the further object of helping the young craftsman. We hardly see the need of such a book when the same information has been given before in many other similar compilations: and, moreover, this book has the fault common among those of its kind that it lacks system, so that one rambles from subject to subject without any very definite purpose, notwithstanding that the various chapters are supposed to deal with special treatments. There is not much to which exception can be taken, but on the other hand there is not much to praise. The best chapters in the book are the first two and the last, the description of the various materials and tools used and the numerous hints on stencilling, transferring, &c., being very useful to the young student. The book is illustrated by a number of plates, most of which shows groups of forms allied to one another in their general design.

"Decorative Brush-Work and Elementary Design," by Henry Cadness. London: B. T. Batsford, High Holborn. Price 3s. 6d. nett.

A Guide for Sanitary Inspectors.

This is an excellent book for sanitary inspectors. To such officials an exact and discriminating knowledge of the Public Health Act of 1875 and the Amendment Act of 1890 is imperative, but the acquirement of such knowledge is laborious. To render it easier the author has picked out those sections which immediately concern the inspector of nuisances, and has set down in clear language the special points relating to them. This is the value of the book. Legal phraseology, however necessary, is generally involved, and often ambiguous; so that it requires a very careful reading to grasp the exact meaning. The Acts in question do not suffer so much from this as other statutes which might be mentioned; but the following extract shows how very clearly the author explains the various regulations: "Section 13.—This section vests all existing sewers, and those to be constructed in the future, in the local authority of the district in which they now or will exist, and under whose control they are to be. There are three exceptions to this—First, in the case where sewers are or have been constructed by any person or company for the purpose of making a profit for such person or for the shareholders of the company. Second, where sewers are 'made and used for the purpose of draining, preserving or improving land under any local or private Act of Parliament, or for the purpose of irrigating land'; and, third, 'sewers under the authority of any commissioners of sewers appointed by the Crown.'" With the matter so clearly set forth the inspector (and, more especially, the student preparing for examination) has no difficulty in seeing what each section means. In addition, the author supplements his succinct explanations by comment arising out of his own experience. For example, when referring to section 35 of the parent Act, which requires "an ashpit furnished with proper doors and coverings," he observes that this evidently means a brick dust-bin or pit; "but all present-day sanatarians strongly condemn such receptacles for house refuse, for the reason that, being large, they may not be emptied as often as they should be to prevent their becoming a nuisance. . . . . Ashpits should be superseded where possible, and particularly in towns, by galvanized iron dust-bins with tight-fitting lids." Or again, in dealing with section 36, the author observes that it frequently happens—in rural districts more particularly—that one water-closet, earth-closet or privy is used by the occupiers of two or more neighbouring cottages, "and where it appears to be sufficient the local authority need not enforce the provisions of this section by requiring one to be provided for each house." These extracts suffice to show the author's method; and we need say little more. The book itself is very clearly printed in good-sized type with each section boldly lettered, besides which a good index makes reference easy. We should, however, like to point out that the word "by-law" (which is here used scores of times) is spelt without an "e"; for it is derived primarily from the Scandinavian word "by"—a town (in Danish *by-lov*, a municipal law, or *by-lag* in Swedish). We know that the spelling commonly adopted by companies, public authorities and others is "bye-law," but all the best dictionaries show this to be incorrect.

"The Sanitary Inspector's Guide," by Henry Lemmoin-Cannon. London: P. S. King & Son, Orchard House, Westminster. Price 3s. 6d. nett.

The Garden City Scheme.

Mr. Howard's scheme for a garden city combining the advantages of both town and country is pretty well known now by most persons, but very great advances have been made since we first gave notice to it three years ago. The book under review is the second edition of "To-Morrow." It deals fully with the details of the scheme, and to those who have not already read the first edition we can recommend its perusal. There can be no doubt that Mr. Howard is working on the right lines—he sees that it is useless to urge the workers to leave the crowded towns without offering some corresponding advantages. We wish the Garden City Pioneer Co., Ltd., every success in the very laudable effort which it has been formed to promote. As Mr. Howard observes, the subscribers to this preliminary company will run considerable risk; and as the profits, even in the event of the most complete success, will only be nominal, the appeal will be addressed only to those who take an interest in the project as public-spirited citizens.

"Garden Cities of To-Morrow," by Ebenezer Howard, London: Swan Sonnenschein & Co., Ltd., Paternoster Square. Price 1s. nett.

Surveying & Sanitation.

Mr. J. V. M'Auley, of Newbridge, has been appointed by the Meath County Council assistant county surveyor for the Dunshaughlin district, out of thirty-two applicants for the position.

The Commission on Sewage.—The Commissioners appointed in 1898 to enquire and report what methods of treating and disposing of sewage may properly be adopted have issued their second report as a Blue-book [Cd. 1,178]. This contains the following reports, which have been made by the officers appointed by the Commissioners for the purpose of the investigations:—(1) The Oxidation of Sterile Sewage, by Mr. Colin C. Frye. (2) The Manchester Experiments, by Professor Boyce and Dr. G. McGowan. (3) Bacteriological Standards in relation to potable and non-potable streams, by Dr. A. C. Houston. (4) Anthrax in Yeovil Sewage, by Dr. A. C. Houston. (5) The Subcutaneous Injection of Animals, by Dr. A. C. Houston. (6) The Longevity of B. Typhosus in Sewage, by Dr. A. MacConkey. (7) Effect of Filtration in reducing the number of Bacteria in Sewage Effluents, by Professors Boyce and Drs. MacConkey, Grünbaum and Hill. (8) The Pollution of the River Severn in the Shrewsbury District, by Professor Boyce and Drs. MacConkey, Grünbaum and Hill. (9) The Self-purification of the River Severn, by Mr. Colin C. Frye. (10) Some of the chief methods used in the Bacteriological Examination of Sewage and Effluents, by Dr. A. C. Houston.—Since the issue of the interim report Mr. Thomas William Killick and Mr. Charles Philip Cotton found it necessary to resign their seats on the Commission. The report is signed by Lord Iddesleigh (chairman), Lieutenant-Colonel C. Phipps Carey, Sir Michael Foster, Lieutenant-Colonel T. Walter Harding, Professor William Ramsay, Dr. J. B. Russell and Mr. W. H. Power; and by Mr. F. J. Willis as secretary.

Engineering Notes.

Trams at Hove.—The Town Council have decided to run trams on their different routes at an estimated cost of £103,636. The scheme includes taking over the present tramway from Hove to Shoreham, five miles distant.

The New Pyrmont Bridge at Sydney, New South Wales, has been opened, and now tenders have been received for the mammoth bridge which is to cross the harbour and connect Sydney proper with North Sydney. The highest was from Joseph Bentley, of Leeds, for £7,720,478, but the majority of the contractors estimated the cost at between £1,500,000 and £1,850,000. Sir William Arrol & Co., and Head, Wrightson & Co. tendered at £1,710,688. The designs were for a structure 300ft. long without approaches. In addition to the bridges, Mr. O'Sullivan, the New South Wales Minister of Public Works, promises that within two years Sydney shall possess one of the finest railway stations in the world.

A new Fire Ladder.—An exhibition was given last week of the fire ladder which has been produced by Schapler-Fries, a German firm, in the yard of the well-known firm of Messrs. Whitbread, Chiswell Street. The escape is pneumatic, and is capable of being raised to a height of 83ft., more than ample for the tallest buildings in London. It was actuated very simply. The ladder can be taken through the narrow streets, even of the Metropolitan district, without discomfort, and two horses are sufficient for draft purposes. It is possible, with a man stationed at the top of the ladder, to send it to its full height of 83ft. without support, and without his extending a hand to assist. The ladder closed to its normal dimensions as easily as a telescope.

New Companies.

D. Jacobs & Sons, Ltd.

Registered to acquire the business carried on at Hackney Road, London, as D. Jacobs & Sons, and to carry on the business of timber merchants, furniture dealers, upholsterers, engineers, decorators, builders' merchants, &c. Capital £3,000 in £1 shares.

Bell & Burnie, Ltd.

Registered to acquire the business of joiners, builders, engineers, contractors, &c., carried on at Bootle, Lancashire, as Bell & Burnie, and to carry on the business of joiners, builders, engineers, contractors, ship fitters, furnishers and repairers, refrigerator builders, dealers in charcoal, silicate cotton, hair, felt, and insulating materials, contractors for insulation work, timber merchants, sawmill proprietors, builders' merchants, land and property owners, &c. Capital £10,000 in £1 shares. The first directors are John Bell and Joseph Burnie.

Ilford Manor Estates, Ltd.

Registered to acquire, by purchase or otherwise, any real or personal property, estates, lands, &c., and to develop the same as builders and contractors, brick, tile and terra-cotta goods manufacturers, builders' materials merchants, &c. Capital £1,000 in £1 shares.

Middlesex Dwellings, Ltd.

Registered to acquire certain leasehold land and hereditaments now the property of J. Bulkley, of 48, Moorgate Street, E.C., and to develop and turn to account the same by building, letting, or otherwise. Capital £10,000 in £1 shares. The first directors are F. Pryce and W. F. Grace.

Eastwood & Co., Ltd.

Registered to acquire the business of Eastwood & Co., Ltd. (incorporated July 9, 1872), and to carry on the business of manufacturers of and dealers in lime, cement, bricks, builders' materials, and the like, barge builders, contractors, &c. Capital £400,000 in £25 shares (8,000 six per cent. cumulative preference). The first directors are E. F. Quilter, O. L. Stephen, A. L. Wheeler, F. W. Wigan, F. B. Eastwood and C. Wigan. Registered office: 47, Belvedere Road, Lambeth, S.E.

Garn Mill Anthracite Colliery Co., Ltd.

Registered to acquire the Garn Mill Anthracite Colliery, Glamorgan, Carmarthenshire, and to carry on business as colliery owners, dealers in bricks, cement, gas, coal, sand, silica, culm, stones, fireclay and lime burners, &c. Capital £2,000 in £5 shares. Registered office: Gloucester Buildings, Swansea.

Andrew Gibson, Ltd.

Registered to acquire the business of glass warehousemen and bevellers, silverers of glass, manufacturers of looking glasses and overmantels, and as manufacturers of and agents for all kinds of sheet, plate and fancy glass, as carried on by A. Gibson at 5, Garden Walk, Great Eastern Street, E., and 75, King's Cross, as Andrew Gibson & Son. Capital £10,000 in £1 shares. Registered office: 5, Garden Walk, Great Eastern Street, E.

Adderley Brassfoundry Co., Ltd.

Registered to acquire from T. F. Voce the businesses known as the Adderley Brassfoundry Co. and the Birmingham Novelty Co., carried on by him at Dollman Street, Vauxhall, Birmingham; to acquire from G. E. Wootton and T. H. Radford, trading as Wootton Brothers & Radford, the portion of their business known as the Dispatch Foundry Co., carried on by them at Pershore Street, Birmingham; and to carry on the business of brassfounders, metal workers, manufacturers of general brass work, &c. Capital £5,000 in £1 shares. The first directors are T. F. Voce (permanent managing director and chairman), G. E. Wootton, J. Radford and G. H. Henn. Registered office: Dollman Street, Birmingham.

Dooler & Wright, Ltd.

Registered to acquire the business carried on at Salford as Dooler & Wright, and to carry on the business of cabinet-makers, carvers, gilders, decorative woodworkers, upholsterers, polishers, painters, joiners, builders, &c. Capital £5,000 in £1 shares. The first directors are F. C. Wright, A. Dooler and S. Bowden. Registered office: Wilfrid Street, St. Simons Bridge, Salford.

Bognor Estates Co., Ltd.

Registered to acquire lands, properties and estates, of whatever tenure; to develop the resources of the same by clearing, planting, farming or building thereon; as builders and contractors and dealers in building materials of every description. Capital £13,000 in £1 shares.

John Adams & Son, Ltd.

Registered to carry on business as veneer cutters, sawmills proprietors, timber and mahogany growers and merchants, cabinet makers, wood turners, manufacturers of joinery mouldings, woodwork of all kinds, &c. Capital £20,000 in £1 shares.

Coming Events.

Saturday, August 23.

NORTHERN ARCHITECTURAL ASSOCIATION.—Excursion to Hartlepool, visits to St. Hilda's Church, Burbook Street Chapel, All Saints', West Hartlepool, the Grand Hotel residences of Sir C. Furness (Tunstall Court) and Mr. W. C. Gray.

ARCHITECTURAL ASSOCIATION (Camera and Cycling Club).—Visit to Rickmansworth.

BRITISH INSTITUTE OF CERTIFIED CARPENTERS.—Visit to Roman Catholic Cathedral, Westminster, at 3 p.m.

Saturday, August 30.

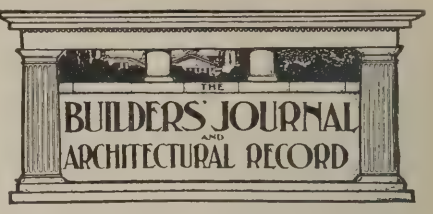
ARCHITECTURAL ASSOCIATION.—Fifth Summer Visit to Heathfield Park.

NORTHERN ARCHITECTURAL ASSOCIATION.—Students' Sketching Club Excursion.

Current Market Prices.

		£	s.	d.	£	s.	d.
FORAGE.							
Beans	per qr.	1	15	0	2	0	0
Clover, best	per load	4	15	0	5	10	0
Hay, best	do.	5	5	0	5	12	6
Sainfoin mixture	do.	4	10	0	5	5	0
Straw	do.	1	16	0	2	8	0
OILS AND PAINTS.							
Castor Oil, French	per cwt.	1	5	9		—	
Colza Oil, English	do.	1	6	6		—	
Copperas	per ton	2	0	0		—	
Lard Oil	per cwt.	2	13	0	2	14	0
Lead, white, ground, carbonate	do.	1	4	10		—	
Do. red	do.	1	0	4½		—	
Linseed Oil, barrels	do.	1	9	6		—	
Petroleum, American	per gal.	0	0	5⅛	0	0	5⅞
Do. Russian	do.	0	0	5¼	6	0	5⅝
Pitch	per barrel	0	7	0			
Shellac, orange	per cwt.	5	4	0		—	
Soda, crystals	per ton	3	2	6	3	5	0
Tallow, Home Melt	per cwt.	1	10	0	1	11	6
Tar, Stockholm	per barrel	1	1	6		—	
Turpentine	per cwt.	1	13	1⅛		—	
METALS.							
Copper, sheet, strong	per ton	69	0	0		—	
Iron, Staffs., bar	do.	6	10	0	8	10	0
Do. Galvanised Corrugated sheet	do.	11	7	6	11	12	6
Lead, pig, Soft Foreign	do.	11	3	9		—	
Do. do. English common brands	do.	11	7	6		—	
Do. sheet, English 3lb. per sq. ft. and upwards	do.	13	5	0			
Do. pipe	do.	13	15	0		—	
Nails, cut clasp, 3in. to 6in.	do.	9	5	0		—	
Do. floor brads	do.	9	0	0		—	
Steel, Staffs., Girders and Angles	do.	5	15	0	6	5	0
Do. do. Mild bars	do.	6	10	0	7	0	0
Tin, Foreign	do.	127	10	0	128	0	0
Do. English ingots	do.	127	0	0	127	10	0
Zinc, sheets, Silesian	do.	24	0	0		—	
Do. do. Vieille Montagne	do.	24	0	0		—	
Do. Spelter	do.	18	12	6	18	18	9
TIMBER.							
SOFT WOODS.							
Fir, Dantzic and Memel	per load	3	0	0	4	10	0
Pine, Quebec, Yellow	per load	4	7	6	6	0	0
Do. Pitch	do.	2	14	0	3	1	0
Laths, log, Dantzic	per fath.	4	10	0	5	10	0
Do. Petersburg	per bundle	0	0	8		—	
Deals, Archangel 2nd & 1st	per P.Std.	16	15	0	24	15	0
Do. do. 4th & 3rd	do.	8	10	0	15	15	0
Do. do. unsorted	do.	5	12	6	6	10	0
Do. Riga	do.	6	15	0	12	10	0
Do. Petersburg 1st Yellow	do.	16	5	0		—	
Do. do. 2nd ,,	do.	9	0	0	12	10	0
Do. do. White	do.	7	5	0	12	10	0
Do. Swedish	do.	8	15	0	16	15	0
Do. White Sea	do.	13	5	0	17	5	0
Do. Quebec Pine, 1st	do.	18	10	0	22	5	0
Do. do. 2nd	do.	22	5	0		—	
Do. do. 3rd &c.	do.	9	15	0		—	
Do. Canadian Spruce 1st	do.	7	10	0	12	10	0
Do. do. 3rd & 2nd	do.	7	0	0	9	10	0
Do. New Brunswick	do.	7	5	0	8	0	0
Battens, all kinds	do.	7	12	6	10	5	0
Flooring Boards 11in. prepared, 1st	per square	0	8	3	0	12	6
Do. 2nd	do	0	10	6		—	
Do. 3rd &c.	do.	0	6	3	0	10	0
HARD WOODS.							
Ash, Quebec	per load	3	17	6	4	10	0
Birch, Quebec	do.	3	12	6	3	17	6
Box, Turkey	per ton	7	0	0	15	0	0
Cedar, 11in., Cuba	per ft. sup.	0	0	4⅝		—	
Do. Honduras	do.	0	0	1¾		—	
Do. Tobasco	do.	0	0	5⅛		—	
Elm, Quebec	per load	0	12	6	5	10	0
Mahogany, Average Price for Cargo, Honduras	per ft. sup.	0	0	3½	0	0	3¾
Do. African	do.	0	0	4		—	
Do. St. Domingo	do.	0	0	5 17/32		—	
Do. Tobasco	do.	0	0	3 17/32		—	
Do. Cuba	do.	0	0	5 5/16		—	
Oak, Dantzic and Memel	per load	3	15	0	5	7	6
Do. Quebec	do.	4	12	6	7	15	0
Teak, Rangoon, planks	do.	16	0	0	17	10	0
Wainscot, Riga (Baulk)	do.	3	15	0	5	15	0
Do. Odessa Crown	do.	3	15	0	5	15	0
Walnut, American	per ft. cube	0	3	1		—	

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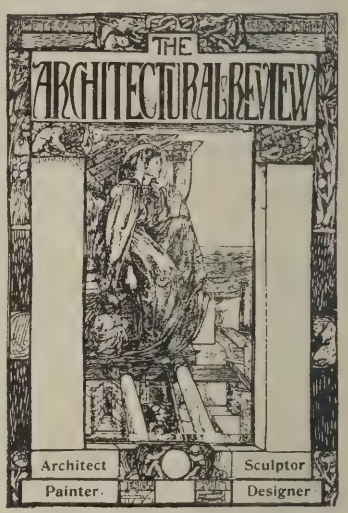


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COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDERS MAY BE OBTAINED.
	BUILDING:		
Aug. 21	Glasgow—Asylum Extensions	Lunacy District Board	J. Salmon & Son, 53 Bothwell Street, Glasgow.
,, 21	London, E.C.—Additions to Refreshment Bar, &c.	Central Finsbury Radical Club	C. W. Harding, 326 City Road, E.C.
,, 21	Belper—Works at Workhouse	Guardians	J. Pym, Clerk, Belper.
,, 22	Pontypridd, Mon.—Buildings, &c., at Electric Station	Urban District Council	Reginald P. Wilson, 66 Victoria Street, Westminster, S.W.
,, 22	Linlithgow—School	School Board	W. J. Scott, architect, Linlithgow.
,, 22	Swindon—School	Schoo. Board	W. Seaton, Town Clerk, Town Hall, Swindon.
,, 22	Blair of Fintray, Scotland—Alterations &c., on farm		A. Stronach, jun., & Son, 20 Belmont Street, Aberdeen.
,, 23	New Ross, Ireland—Iron Shed at Workhouse	Guardians	P. A. Pope, Clerk, New Ross.
,, 23	Newtownards, Ireland—Workhouse Disinfecting House	Rural District Council	J. Colville, Clerk, Boardroom, Workhouse, Newtownards.
,, 24	Antony—Repairs to Chapel, &c.	Wesleyan Connexion	Post Office, Torpoint.
,, 25	Rhymney, Mon.—Cottage Hospital, &c.	Fyldelhuim Guardians	Haywood & Harrison, Architects, Accrington.
,, 25	Bristol—School	School Board	H. D. Bryan, 38 College Green, Bristol.
,, 25	Swindon—Extensions of Technical School	Corporation	Bishop & Pritchett, Architects, Regent Circus, Swindon.
,, 26	Grimsby—Piling, Timbering and Concreting at School	School Board	H. C. Scaping, Architect, Court Chambers, Grimsby.
,, 26	Birkenhead—Offices	Corporation	C. Brownridge, Borough Surveyor, Town Hall, Birkenhead.
,, 26	Grangemouth, Scotland—School	School Board	J. Strang, Architect, Vicar Street, Falkirk.
,, 26	Gloucester—Nurses' Home at Infirmary	General Infirmary and Gloucestershire Eye Institution.	Vale & Kingsford, George Street, Gloucester.
,, 27	Leeds—Offices, Workshops and Store Rooms	Street Lighting Committee	City Engineer, Municipal Buildings, Leeds.
,, 27	Caerleon, Mon.—Asylum	Newport Corporation	Borough Engineer, Town Hall, Newport.
,, 27	Rathmines—Extension of Engine Room, &c.	Urban District Council	R. Hammond, 61 Victoria Street, Westminster, S.W.
,, 27	Wibsey—Additions to Branch Stores	Great Horton Industrl. Soc. Ltd.	J. Drake & Son, Architects, Queensbury.
,, 27	Ipswich—Generating Station, Offices, &c.	Town Council	C. S. Peach, 28, Victoria Street, London, S.W.
,, 27	Grays, Essex—Raising Ceilings, &c.	Metropolitan Asylums Board	T. D. Mann, Clerk, Board's Offices, Embankment, E.C.
,, 27	Hampstead, N.W.—Bathroom at Hospital	Metropolitan Asylums Board	T. D. Mann, Clerk, Board's Offices, Embankment, E.C.
,, 27	Tooting, S.W.—Fixing Iron Bands round Chimney	Metropolitan Asylums Board	T. D. Mann, Clerk, Board's Offices, Embankment, E.C.
,, 27	Newport, Mon.—Lunatic Asylum	Corporation	Borough Engineer, Town Hall, Newport, Mon.
,, 28	Santiago de Galicia, Spain—Building for Veterinary School	Ministry of Public Instruction	Office of Ministry of Public Instruction, Madrid.
,, 30	Stretford—Electricity Generating Station	Urban District Council	E. Woodhouse, 88 Mosley Street, Manchester.
,, 28	Gloucester—Nurses' Home	Committee	Vale & Kingsford, George Street, Gloucester.
,, 28	Bristol—Foundations, Subways, &c.	Corporation	H. Faraday Proctor, City Electrical Engineer, Temple Back, Bristol.
,, 28	Haslemere, Surrey—Church		Spooner & Cobbold, 17 Red Lion Square, Holborn, E.C.
,, 28	Bootle—Laying Foundations, to datum level of School Premises.	School Board	T. Cox, 11 Dale Street, Liverpool.
,, 29	Crownhill, near Plymouth—Police Station	Devon County Council	E. H. Harbottle, County Surveyor, Queen Street, Exeter.
,, 29	Dublin—Map Stores at Mountjoy Barracks	Board of Public Works	H. Williams, Secretary, Office of Public Works, Dublin.
,, 30	Carlisle—Alterations and Additions to House	Corporation	H. C. Marks, A.M.I.C.E., City Engineer, 36 Fisher Street, Carlisle.
,, 30	Newcastle-on-Tyne—Offices, &c.	Consett Iron Co., Ltd.	C. E. Oliver, Company's Architect, Consett.
Sept. 2	Swindon—Covering-in Market Site	Corporation	H. J. Hamp, Borough Surveyor, Town Hall, Swindon.
,, 3	Parkeston, Essex—Schools and Alterations	Ramsey School Board	Start & Rowell, Architects, Colchester.
,, 3	London, S.E.—Two Underground Conveniences	Lambeth Borough Council	H. Edwards, Borough Engineer, Lambeth Town Hall, Kennington Green, S.E.
,, 6	Gwithian, Cornwall—Rebuilding Hotel	Redruth Brewery Co., Ltd.	H. W. Collins, Architect, Walreddon, Redruth.
,, 8	Leeds—Excavators' and Concretors' Work in Connection with Hospital Foundations.	Sanitary Committee	T. Hewson, City Engineer, Municipal Buildings, Leeds.
,, 8	Llandovery, Wales—Cattle and Sheep Market	Corporation	Clerk, Town Hall, Llandovery.
,, 8	Walsall—School	School Board	H. E. Lavender, Architect, Bridge Street, Walsall.
,, 9	Enfield—Deaf Centre and Additions to School	School Board	G. E. T. Laurence, 22 Buckingham Street, Adelphi, W.C.
,, 10	Bristol—Infirmary	Union Guardians	J. J. Simpson, Clerk, St. Peter's Hospital, Bristol.
,, 11	Hackney—Coal Stores	Borough Council	R. Hammond, 64 Victoria Street, Westminster, S.W.
,, 30	Wesham, Lancs.—Workhouse and Offices	Fylde Union Guardians	Haywood & Harrison, Accrington.
No date.	Newry—Turbine Foundations and Turbine House		R. S. Ball, A.M.I.C.E., care of H. Thomson & Co., Newry.
	ENGINEERING:		
Aug. 21	Selangor, Malay States—Electrical Plant and Materials	Crown Agents for Colonies	Crown Agents for the Colonies, Downing Street, S.W.
,, 21	Ilkeston and Heanor—Waterworks	Urban District Council	G. & F. W. Hodgson, Engineers, Loughborough.
,, 21	Bristol—Culverts, Subways, &c.	Electrical Committee	H. F. Proctor, City Electrical Engineer, Temple Back, Bristol.
,, 22	Southowram—Main Sewer, Sewage-disposal Works, &c.	Council	F. Massie, Engineer, Tetley House, Wakefield.
,, 23	Plymouth—Overhead Line Construction	Corporation	E. G. Okell, Borough Electrical Engineer, Prince Rock, Plymouth.
,, 23	Colchester—Alterations to Pumps	Town Council	C. E. Bland, Town Hall, Colchester.
,, 23	Malvern—Electricity Supply Works	Urban District Council	H. P. Maybury, Engineer, Council House, Malvern.
,, 23	Earls Barton, Northants—Reservoir, &c.	Water Board	R. E. Middleton, 17 Victoria Street, S.W.
,, 24	London—Dredging Thames	Conservancy	Thames Conservancy Offices, Victoria Embankment, E.C.
,, 25	London, E.—Arc Lamp Carbons	Poplar Borough Council	Borough Elect. Engr., Elec. Wks., Glaucus St., Bromley-by-Bow.
,, 25	Harrogate—Pipe Trench	Corporation	E. W. Dixon, 14 Albert Street, Harrogate.
,, 25	Newmachar, Aberdeen—Electric Lighting	Aberdeen District Lunacy Board	A. M. Mackenzie, 343 Union Street, Aberdeen.
,, 25	Leon, Spain—Canalising River Burnesca	Ministry of Agriculture, &c.	Office of the Ministry of Agriculture, Commerce and Public Works, Madrid.
,, 26	King's Lynn—Screw Pile Light	Conservancy Board	E. J. Silcock, Engineer, Board's Office, King's Lynn.
,, 27	Honiton—Reservoirs	Town Council	Beesley, Son & Nichols, Civil Engineers, 11 Victoria Street, Westminster, S.W.
,, 28	Bristol—Foundations, Culverts, &c., at Electricity Works	Electricity Committee	H. F. Proctor, City Electrical Engineer, Temple Bank, Bristol.
,, 28	Dartford—Fire-Alarm Installation	Metropolitan Asylums Board	T. D. Mann, Clerk, Board's Offices, Embankment, E.C.
,, 28	Dartford—Fire Hydrants and Accessories	Metropolitan Asylums Board	T. D. Mann, Clerk, Board's Offices, Embankment, E.C.
,, 29	Southampton—Fire Escapes, &c.	Corporation	Superintendent Johnson, Municipal Offices, Southampton.
,, 30	Santa Cruz de Teneriffe, Canaries—Landing Wharf		Direccion-General de Sanidad (Ministerio de la Gobernacion), Madrid.
,, 30	La Galea, Vizcaya, Spain—Lighthouse		Directorate-General of Public Works (Ministry of Agriculture, &c., and Public Works), Madrid.
Sept. 1	Valparaiso, Chile—Electric Tramways		Chilian Consulate, 10 Lime Street, E.C.
,, 1	Swansea—Telephone Equipment	Town Council	A. R. Bennett, 65 Renfield Street, Glasgow.
,, 3	Leicester—Electrical Tramway Works	Tramway Committee	E. G. Mawbey, Town Hall, Leicester.
,, 4	Swansea—Hydraulic Accumulators, &c.	Harbour Trustees	A. O. Schenk, Harbour Offices, Swansea.
,, 4	Swansea—Drawbridge	Harbour Trustees	A. O. Schenk, Harbour Offices, Swansea.
,, 6	Naas, Ireland—Well, Pump and Wall	No. 2 Rural District Council	D. J. Purcell, Clerk, Board Room, Workhouse, Naas.
,, 8	Naas, Ireland—Wells and Sewerage Works	No. 1 Rural District Council	D. J. Purcell, Clerk, Board Room, Workhouse, Naas.
,, 10	Bristol—Boilers, Heating Apparatus, &c.	Board of Guardians	J. J. Simpson, Clerk, St. Peter's Hospital, Bristol.
,, 11	Andraitx, Baleares, Spain—Dredging		Office of the Ministry of Agriculture, Commerce and Public Works, Madrid.
,, 14	St. Petersburg, Russia—Two Bridges over River Neva		The Delegation Municipale, St. Petersburg.
,, 15	Launceston, Tasmania—Electric Power Transmission Extensions.	Mayor and Aldermen	J. Terry & Co., 7 Great Winchester Street, E.C.
,, 15	Cairo—Widening Canal	Ministry of Public Works	Inspector of Irritation, Projects Circle, Minia.
,, 29	Vigo and Bayona, Spain—Electric Tramway		Office of the Ministry of Agriculture, Commerce and Public Works, Madrid.
,, 30	Port Adelaide, South Australia—Harbour		Agent-General for South Australia, 1 Crosby Square, London.
Oct. 7	Newcastle-on-Tyne—Electrification of Line	Directors, N.E.R.	Wilson Worsdell, N.E R., Gateshead-on-Tyne.
Nov. 30	Shanghai—Electric Lighting	British Municipal Councils	Office of the Board of Trade, 50 Parliament Street, S.W.
Dec. 13	Madrid—Canal Reservoir		Office of the Ministry of Agriculture, Commerce and Public Works, Madrid.
	IRON AND STEEL:		
Aug. 21	London, E.C.—Plates, Chairs, &c.	Great Indian Peninsula Rly. Co.	J. I. Berry, 48 Copthall Avenue, E.C.
,, 23	Prenzlau—Rails, &c.		Mr. Langenbein, Kreiseisenbahn-director, Prenzlau, Germany.
,, 25	Horwich, Lancs—Goods and Materials	Urban District Council	Surveyor, Council Offices, Horwich.
,, 27	Stoke-on-Trent—Iron Balconies, &c.	Union Guardians	C. Lynam, Architect, Stoke-upon-Trent.
,, 27	London, S.W.—Iron Bands round Chimney Shaft.	Metropolitan Asylums Board	T. D. Mann, Clerk, Board's Offices, Embankment, E.C.
,, 28	Bury, Lancs—Tramway Materials	Tramways Committee	A. W. Bradley, Borough Engineer, Corporation Offices, Bury.
,, 30	Stretford—Steelwork for Electricity Generating Station	Urban District Council	E. Woodhouse, 88 Mosley Street, Manchester.
,, 30	Pietermaritzburg—Rails, &c.		Ford Brothers, 1 Southampton Street, Fitzroy Sq., London, W.
,, 30	Karlsruhe—Six Locomotive Boilers		State Railway, Karlsruhe, Germany.
31	London, E.C.—Wheels, Axles, &c.	Great Indian Peninsula Ry. Co.	Secretary's Office, 48 Copthall Avenue, London, E.C.

COMPLETE LIST OF CONTRACTS OPEN—*continued.*

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDERS MAY BE OBTAINED.
	IRON AND STEEL—*continued.*		
Sept. 1	London, S.W.—Rails and Fishplates	———	Agent-General for Victoria, 15 Victoria Street, S.W.
,, 1	Southampton—Stud Chain, Anchors, Buoys, &c.	Harbour Board	W. Bowyer, Superintendent, Harbour Office, Southampton.
,, 1	Lancaster—Railings	Streets Committee	J. C. Mount, Borough Surveyor, Town Hall, Lancaster.
	FURNITURE:		
Aug. 22	Richmond, Surrey—Workhouse Furniture, Fixtures and Fittings, &c.	Union Guardians	E. J. Partridge, Bank Chambers, Richmond.
,, 22	Celbridge, Ireland—Tables, &c., for Operating Theatre	Guardians	Dr. C. J. O'Connor, Medical Officer of Workhouse, Celbridge.
,, 23	Aston—Mattresses	Union Guardians	J. North, Clerk, Union Offices, Vauxhall Road, Birmingham.
,, 23	Gravelly Hill, near Birmingham—Bedsteads	Aston Union Guardians	J. North, Clerk, Union Offices, Vauxhall Road, Birmingham.
,, 30	East Ham—Furnishing Council Chamber	Urban District Council	H. A. Cheers, 35 Waldegrave Park, Twickenham.
Sept. 2	Plymouth—700 Desks, &c.	School Board	E. C. Cook, 18 Princess Square, Plymouth.
	PAINTING AND PLUMBING:		
Aug. 21	Dewsbury—Whitewashing, &c.	Guardians	Master, Workhouse, Dewsbury.
,, 21	London, E.C.—Paints, &c.	Great Indian Peninsula Rly. Co.	J. I Berry, Secretary, 48 Copthall Avenue, E.C.
,, 22	Glasgow—Painting	Parish Council	Macwhannell & Rogerson, 58 West Regent Street, Glasgow.
,, 25	Horwich—Lead Piping, &c.	Urban District Council	Surveyor, Council Offices, Horwich.
,, 27	Grays, Essex—Cleaning and Painting Works	Metropolitan Asylums Board	T. D. Mann, Clerk, Board's Offices, Embankment, E.C.
Sept. 1	Alfreton—Church Decoration and Painting	Methodist Free Church Trustees	J. Wheatcroft, King Street, Alfreton.
	ROADS AND CARTAGE:		
Aug. 21	Lichfield, Staffs—Slag, Kerbing, Channelling, &c.	Rural District Coungil	R. J. Knapman, District Surveyor, Lichfield.
,, 22	Woodford—Kerbing, Channelling, &c.	Urban District Council	W. Farrington, Surveyor, Council Offices, Woodford Green, Essex.
,, 22	Woodford—Road Rollers	Urban District Council	W. Farrington, Surveyor, Council Offices, Woodford Green, Essex.
,, 25	Larne, Ireland—Road	———	W. J. Fennell, 2 Wellington Place, Belfast.
,, 25	Muswell Hill—Roads	———	Vigers & Co., 4 Frederick's Place, Old Jewry, E.C.
,, 25	Horwich—Kerbs, Flags, Macadam, &c.	Urban District Council	Surveyor, Council Offices, Horwich.
,, 26	Dunstable—Steam Rolling	Town Council	G. Simcox, Borough Surveyor, Town Hall, Dunstable.
,, 26	Leeds—Horse Hire	Gas Committee	R. H. Townsley, General Manager, Municipal Offices, Leeds.
,, 26	Dunstable—Granite	Town Council	G. Simcox, Borough Surveyor, Town Hall, Dunstable.
,, 26	Bootle—Street Improvement Works	Corporation	Borough Engineer, Bootle.
,, 26	Clutton—Steam Rolling	Rural District Council	J. S. Drury, Clerk, Council Offices, Temple Cloud, near Bristol.
,, 27	Bedford—Broken Granite	Corporation	R. O. Seacome, Town Clerk, Town Hall, Bedford.
,, 27	London, S.W.—Tar Paving	Metropolitan Asylums Board	T. D. Mann, Clerk, Board's Offices, Embankment, E.C.
,, 27	Dartford—Roads Repair	Metropolitan Asylums	T. D. Mann, Clerk, Board's Offices, Dartford.
,, 27	Ryton-on-Tyne—Culvert and Road Improvement	Urban District Council	J. P. Dalton, Engineer, Ryton-on-Tyne.
,, 28	Barnet—Granite	Urban District Council	H. York, Surveyor, Council Offices, Barnet.
,, 30	Bourne—Carting	Rural District Council	A. J. Metcalfe, Surveyor, Bourne.
Sept. 1	Southampton—Tarpaving Playgrounds	School Board	J. H. Blizard, Architect, Lansdowne House, Castle Lane, Southampton.
,, 4	West Ham, E.—Paving Tramways	Corporation	J. G. Morley, Borough Engineer, Town Hall, West Ham, E.
,, 12	Halifax—Paving	Highways Committee	J. Lord, Borough Engineer, Town Hall, Halifax.
	SANITARY:		
Aug. 23	Dukinfield—Sewering, &c., Streets	Corporation	Borough Surveyor, Town Hall, Dukinfield.
,, 25	Horwich, Lancs—Stoneware Pipes, Disinfectants, &c.	Urban District Council	Surveyor Council Offices, Horwich.
,, 27	Stanley, Yorks—Sewer Extensions	Urban District Council	F. Massie, Engineer, Tetley House, Wakefield.
,, 28	New Barnet—Sewers, &c.	Urban District Council	H. York, Surveyor, Station Road, New Barnet.
,, 28	Rotherham—Sewerage Works	Rural District Council	J. Platts, Engineer, High Street Rotherham.
,, 28	Hendon—Pipe Sewer	J. E. B. Cox	Pollard & Tingle, 31 Old Queen Street, Westminster.
Sept. 3	Richmond, Surrey—Sewers	Town Council	J. H. Brierley, Borough Surveyor, Town Hall, Richmond, Surrey.
,, 3	London, S.E.—Two Underground Conveniences	Lambeth Borough Council	H. Edwards, Borough Engineer, Lambeth Town Hall, Kennington Green, S.E.
,, 8	Naas, Ireland—Sewerage Works	No. 1 R.D.C.	F. Bergin, Engineer, Kildare.
,, 9	West Molesey, Surrey—Sewerage Works	Urban District Council	J. Stevenson, Engineer, District Council Offices, East Molesey.
	TIMBER:		
Aug. 30	Pietermaritzburg—Sleepers	Corporation	Ford Brothers, 12 Southampton Street, Fitzroy Square, London, W.

COMPETITIONS OPEN.

DATE OF DELIVERY.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Aug. 23	Clacton-on-Sea—School Board	———	C. E. White, Clerk to School Board, Wellesley Road, Clacton-on-Sea.
,, 30	Sunderland—Police and Fire-Brigade Buildings	£100, £50, £25.	Borough Engineer, Town Hall, Sunderland.
,, 30	Deptford, S.E.—Town Hall and Municipal Offices	£100, £75, £50.	V. Orchard, Town Clerk, 20 Tanner's Hill, Deptford, S.E.
Sept. 1-14	St. Petersburg—Bridges over Great Neva River	———	St. Petersburg Gorodskaja Uprawa, St. Petersburg.
,, 7	Southend—Church, Clergy House, Hall, &c.	———	C. H. J. Talmage, Southchurch Road, Warnor Square, Southend-on-Sea.
,, 15	Liverpool Labourers' Dwellings	£250, £150, £100.	Town Clerk, Liverpool.
,, 16	London, S.E.—Artizans' Dwellings	£100, £60, £40.	F. Ryall, Town Clerk, Bermondsey Town Hall, Spa Road, S.E.
,, 23	London, N.—Municipal Buildings, Fire Station, Baths, &c.	£200, £100, £50.	W. H. Prescott, Engineer, U.D.C. Offices, Tottenham.
,, 29	Bideford—Municipal Offices and Public Library	£30, £15, £10.	W. B. Seldon, Town Clerk, 18 The Quay, Bideford.
Oct. 1	Maidenhead—Free Library	£50, £20, £10.	John Kick, Town Clerk, Guildhall, Maidenhead.
,, 14	Newark—Alterations and Additions to Infirmary	£21.	Mr. H. Colton, Clerk to Guardians, 27 Lombard Street, Newark.
Nov. 1	Allahabad—Memorial to Queen Victoria	2,000 Rs.	H. N. Wright, Indian Civil Service, Allahabad, India.
Jan. 31	Cape Town—University Buildings	£400, £200, £100.	Agent-General for the Cape of Good Hope, London.
No date.	Montreal—Monument in honour of Canadian Soldiers who fought in South Africa.	———	Peers Davidson, Bank of Montreal, 22 Abchurch Lane, London, E.C.

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Tenders.

Information from accredited sources should be sent to "The Editor" at latest by noon on Monday if intended for publication in the following Wednesday's issue. Results of Tenders cannot be accepted unless they contain the name of the Architect or Surveyor for the work.

Addressed postcards on which lists of tenders may be stated will be sent post free on application to the Manager, BUILDERS' JOURNAL, *Effingham House, Arundel Street, Strand, W.C.*

ABERAVON (GLAMORGAN).—For the erection of an infants' school, to accommodate about 210 children, at Aberavon, for the Aberavon School Board. Messrs. Thomas and James, architects, Port Talbot and Aberavon:—

Latty & Co., Cardiff	£3,729 16 10
C. Morgan, Port Talbot	3,090 0 0
S. T. Rees, Aberavon	3,050 0 0
E. G. Groom, Llandovery	2,742 0 0
T. Davies, Aberavon	2,647 7 10

ALDERSHOT.—For the erection of stables, cart-sheds and other buildings in connection with their new depot, for the Aldershot Urban District Council. Mr. Nelson F. Dennis, A.M.I.C.E., surveyor:—

J. Hughes	£3,560	G. Kemp	£3,289
M. Bateman, Ash Vale	3,525	W. Garland*	3,089
Martin, Wells & Co.	3,300		

* Accepted. [Rest of Aldershot.]

BRISTOL.—For new bottling stores and additions to the Bristol United Breweries' premises at St. Paul's Brewery, Bristol. Mr. Thomas Scammell, F.S.I., architect and surveyor, 1 St. Stephen Street, Bristol.

John Perkins	£2,330 0
William Church	2,186 0
William Cowlin & Son	2,173 0
Jones & Hill	2,157 0
C. A. Hayes	2,133 0
R. Wilkins & Sons	2,084 0
Easterbrook & Sons	2,045 0
George Humphries	1,994 13
F. Chown*	1,938 0

* Accepted. [All of Bristol.]

LONDON, S.W.—For the construction of underground conveniences in Westbourne Grove by Archer Street, for the Kensington Borough Council:—

Doulton & Co., Ltd.	£2,146	Davis & Bennett	£2,049
G. Jennings, Ltd.	2,080	B. Finch & Co., Ltd.*	1,958

* Recommended for acceptance.

IPSWICH.- For the erection of a new chimney shaft and the reconstruction, with additions, of the present boiler-house and other works in connection therewith at the borough asylum. Mr. E. Buckham, borough surveyor:—

London Boiler Setting Company	£2,477 11
C. Koper, Ipswich	1,752 0
Wykes & Warner	1,707 0
C. Barrett, Ipswich	1,695 0
S. A. Kenney, Ipswich	1,518 0
D. Lee, Pocklington	1,509 0
H. J. Linzell, Ipswich	1,495 0
G. Grimwood & Sons, Ipswich	£1,438 0
A. J. Watson, Cambridge	1,340 0
S. Skerritt,* 89 Lacey Street, Ipswich	1,350 0

* Accepted.

LONDON, N.W.—For the erection of a boundary wall, &c., at their new stoneyard and depot, Lymington Road, Finchley Road, N.W., for the Hampstead Borough Council. Mr. O. E. Winter, A.M.I.C.E., borough engineer:—

Spiers & Son, 2 Hill Road, St. John's Wood	£4,470
J. Gibb, 191 West End Lane, N.W.	3,440
H. B. Oldrey & Son, 1 West End Lane, N.W.	3,350
W. H. Drake, Well Road, Hampstead	3,000
H. Kent, 17, Albion Road, Lewisham	3,000
E. Rogers & Co., 6 St. Lawrence Road, North Kensington	2,700
C. W. Killingback & Co., James Street, Campden Town, N.W.*	2,695

* Accepted subject to conditions.

LONDON, W.—For the alteration and enlargement of the receiving wards of their workhouse in the Marloes Road, for the Kensington Board of Guardians:—

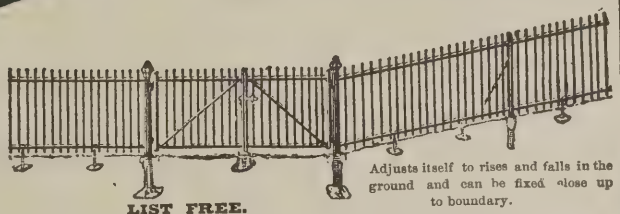
W. Webber	£1,315
F. G. Minter	1,260
J. Jarvis & Sons	1,245
L. F. Lamplough	1,219
F. W. Harris	1,169
L. Whitehead & Co., Ltd.	1,150
J. O. Richardson,* Albert Works, Peckham	1,075

* Accepted.

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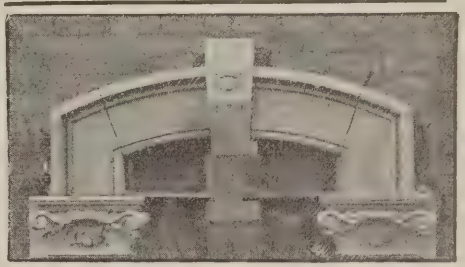
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TENDERS—*cont.*

LONDON, S.W.—For constructing sewers and making-up roads, Leinster Avenue, Mortlake. Mr. William H. Burt, surveyor, 10 Bush Lane, E.C.:—

Killingback & Co.	£2,057	Neave & Son	£1,731
J. A. Stayner	2,049	Wimpey & Co.*	1,585
Kavanagh & Co.	1,779		

* Accepted.

MERTON (SURREY).—For the erection of parish offices in the Kingston Road, Merton, for the Merton Parish Council. Mr. H. G. Quartermain, architect, Merton Park:—

Burnand, Wallington	£1,984
Nightingale, Albert Embankment, S.E	1,975
Parsons & Townsend, Wimbledon	1,943
Holliday & Greenwood, Brixton	1,888
Richardson, Peckham	1,872
Bulled, Croydon	1,793
Lorden, Tooting	1,766
Burges & Sons,* Wycliffe Road, Wimbledon	1,550

* Accepted.

IRTHLINGBOROUGH.—For alterations and additions to the Board Schools, Irthlingborough. Messrs. Edward Sharman, Caleb Archer and J. Melford Sharman, architects, Wellinborough:—

R. Marriott, Jr.	£3,075 0
Goodman & Murtsett	2,920 0
T. Swindall	2,899 0
J. H. Smith	2,881 0
T. & C. Berrill	2,859 0
F. Henson	2,811 10
Berrill & Green	2,749 0
Hacksley Brothers,* Wellingborough	2,637 0

* Accepted subject to consent of Board of Education.

NEWHAVEN (SUSSEX).—For general repairs and internal painting and decorating at the workhouse, for the Guardians of Newhaven Union:—

E. Hammond, Lewes	£3,799
W. Wells, Plumpton	3,060
Peerless, Dennis & Co., Eastbourne	2,963
Noakes & Son, Eastbourne	2,893

OSWESTRY.—For erection and completion of extensions to the market buildings, in Bailey Street, for the Town Council. Mr. G. William Lacey, C.E., borough engineer and surveyor:—

H. Price, Shrewsbury	£1,300 0
W. Felton, Oswestry	1,296 0
J. Higgins, Oswestry	1,249 10
W. H. Thomas,* Oswestry	1,099 0

* Accepted.

RAMSGATE.—For the construction of certain sea-defence works and groyne on the East Cliff, Ramsgate, for the Corporation. Mr. T. C. Taylor, borough surveyor:—

W. Manders, Leyton	£13,024 0 0
J. & T. Binns, Croydon	£11,903 6 6
A. E. Nunn, Tenterden	11,726 4 0
Castle & Co., Garlinge	10,745 16 0
J. J. Wise, Deal	10,663 0 0
Paramor & Sons, Margate	10,087 14 3
A. Fasey & Son, London	9,996 17 6
A. Woodhouse, London	9,670 0 0
W. Wilson, Ramsgate	9,438 10 0
J. Trueman, Swanley	8,950 0 0
T. T. Denne, Walmer	8,287 0 0
G. Bell, Tottenham	8,063 5 6
B. Cooke & Co., London	6,333 0 0
Case Sea-Defence Syndicate, Ltd.,* London	£6,079 10 3

Borough surveyor's estimate, £8,396 12s. 10d.

* Accepted.

STANLEY (YORKS).—For the construction of a main pipe sewer for the drainage of Bottomboat, together with the necessary man-holes, lamp-holes, flushing chambers, and other appurtenant work, for the Stanley Urban District Council. Mr. Frank Massie, A.M.I.C.E., engineer, Tetley House, Wakefield:—

W. Jowett, Brighouse	£2,863 0 0
Ward & Tetley, Bradford	2,364 13 9
Binks Brothers, Outwood	2,250 0 0
A. C. Harris, Morley	2,065 12 10
S. Hall, Stanley	1,983 9 4
T. Egan & Sons, Manningham	1,878 8 10
M. Arundel, East Ardsley	1,818 14 0
W. Doleman, Dewsbury	1,790 15 10
T. & G. Wilsen,* Wakefield	1,715 0 0

* Accepted.

WOLVERHAMPTON.—For the erection of a new covered market on the site adjoining the cold stores and ice factory in Wulfruna Street, for the Markets Committee:—

F. L. Jones	£19,900 0
T. & G. Perry	19,503 10
H. Gough	18,900 0
H. Willcock & Co.	18,286 0
J. Herbert	17,998 0
R. Speake & Sons	17,815 0
G. Cave & Sons*	17,535 0

* Accepted. [All of Wolverhampton.]

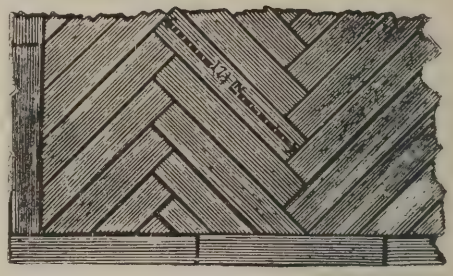
VENTNOR, I.W.—Accepted for the construction of boundary fences and entrance gates at Undercliff Isolation Hospital. Mr. George Boughton, architect, Ryde, I.W.:—

E. A. Vincent, Ventnor	£167 14

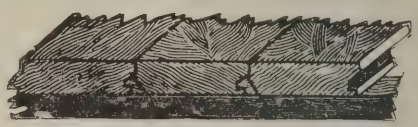
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Duke & Ockenden, Littlehampton	262 10

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Aug. 27, 1902
No. 394.

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An Architectural Causerie.

Balmoral Castle. The late Queen Victoria had no liking for changes in her latter days, and thus it happened that no alterations were made to Balmoral Castle; she, however, left an instruction that if it was thought necessary after her death to make any alterations these should only be done by a Scottish architect. His Majesty the King has had many changes made at Windsor Castle and Buckingham Palace and Balmoral has now been similarly overhauled. During the residence of the Court there last autumn, Dr. Rowand Anderson, the well-known Scottish architect, was sent for, and at his suggestion many improvements have been carried out so as to render the internal arrangements of the Castle more suited to present requirements. These alterations have been in progress for the last six months, and are now practically completed. Among other things a new heating system has been introduced and improvements made in the servants' accommodation, besides which the cleaners and the upholsterers have been very busy preparing the place for the King's visit.

Exterior Gilding. When the great Palace of Westminster was completed and Parliament was "at last lodged as Parliament should be," the average Englishman, compelled to admire a structure which in spite of some faults is beautiful, yet strongly inclined to exercise his national privilege of grumbling, was often heard to say that it was "gilt gingerbread." There is a considerable amount of gold about the building: it catches the light above the Victoria Tower; it glitters over the great clock; it sparkles upon vanes and railings; its presence seems to give a certain brilliancy even on the darkest days. In our time it is no longer objected to; the building is not criticised by the public, for it has grown familiar and the gold is accepted, with the shields and lions, the Tudor roses and the portcullises of Westminster, which adorn it from end to end. The cross of St. Paul's Cathedral again gives us a point of light above the lantern, the Golden Gallery being immediately beneath it. But gold is practically absent from the greater part of London as a decorative detail in architecture—for the mere gilt-letter mania of the last few years is in no sense architectural. Abroad, gold is much affected—for external decoration. Paris uses it nobly: Mansard's fine dome of the Invalides was not spoilt by the golden "trophies" placed on it by Napoleon; it is freely used to enrich gates and grilles, and gives an air of splendour to the new Alexander Bridge, whose four "pylons" are crowned with statuary groups of gilded bronze. In Brussels the famous Grande Place, picturesque and historic, is surrounded by the old halls of the companies whose mullions are heavily gilded. In Munich may be seen "Old German" fronts whose walls are almost covered with processions of knights and ladies, burghers and men-at-arms, painted in colours on a flat gold ground; above rise high-pitched roofs of a deep chocolate or reddish-brown. Can gold be utilised for decorative systems in the rebuilding of London? The first thing to be said in answer is that the association of this particular metal with the idea of wealth is so deeply rooted in the human mind that not many people can bring themselves to pass judgment fairly upon it *as a colour*. The long period, too, in which colour was practically allowed to die out in architecture was unfavourable to its employment, but it was much esteemed for internal decoration in England during the Tudor and Elizabethan periods; it was never disdained for a vane, and showed brightly here and there in armorial details of ornamental iron gates. A certain air of splendour is appropriate to a capital city; and the use of gold, if duly restrained, treated as a colour in conjunction with other colours, especially in combination with stone or marble, is one way of obtaining it.

A Work of Art. A paragraph recently appeared in the "Western Daily Mercury" which shows our contemporary's artistic ability. It appears from this that the new style for which we have been waiting so long has arrived. This is the substance of the paragraph: "At the time of the British occupation, Khartoum being in ruins, the Government offices were established at Omdurman, but they are gradually being removed to the new city as the permanent buildings are erected. Omdurman, with its mud hovels, covers a large area, but much is ruinous. The place when taken was indescribably filthy; it is now intersected by wide roads and is under police supervision. The first sight of Khartoum from the river comes as a charming surprise after the long journey through a thousand miles of barrenness, for it is embosomed in trees. The palace, a massive building, is a finished structure of great durability and elegance, and gives the impression that its builders have come to stay. No professional architect was employed—it is, in fact, a new style, an invention of the Royal Engineers. These ingenious officers were quartered here, and got the job to do as part of their duty, and did their best. The result is charming and original. But engineers have to be ubiquitous, like their motto, and those who commenced were not allowed to finish the building. The lower storeys are the design of one engineer, the upper of another, and yet the whole is congruous."



COLONNADE, AMALIENBORG PALACE, COPENHAGEN.

St. Mark's Campanile. The decision of the Royal Academy to open a public subscription for contributions towards the fund for rebuilding St. Mark's Campanile at Venice is a new departure, and the spirit in which the offer is made is to be commended, but the argument for the rebuilding is not convincing. If all the artists in Christendom had painted pictures of Venice, that would be no reason why the Campanile should be rebuilt in its old ill-proportioned form. Why should it be a lifeless reproduction, and not a product of its own time in its design?



OLD STREET AND CANAL, COPENHAGEN: THORWALDSEN'S MUSEUM TO THE RIGHT.

COPENHAGEN AND ITS SURROUNDINGS.

By G. R. BRYCE.

LIKE many other Continental towns, the Danish capital has much to attract and interest the architect. Its quaint streets and unique buildings, its museums and art galleries, not to mention the historical traditions which belong to it, make Copenhagen a suitable happy hunting-ground for the student who combines recreation with the pursuit of his profession. Copenhagen is one of those cities in which present-day advance is united with old-fashioned quaintness. Passing from the large central square called Kongens Nytorv by a narrow winding street composed of shops replete with the latest novelties, one emerges upon an old market-place and finds peasant women in quaint Dutch costume sitting by their fruit or vegetable stands. Within a stone's throw of the tall old whitewashed houses fronting the sleepy canals electric cars dart through the quarter of up-to-date hotels and railway stations. Large ocean steamers are berthed close to old-fashioned wooden vessels and make a strong contrast.

Approaching the city from the Sound, the flatness of the country enables one to descry the gilded domes and slender spires long before entering the harbour. When at length the steamer reaches her berth in the middle of the town, the surroundings are strikingly picturesque. The Exchange, with its row of gables and fantastic spire, is before us—in front passing one of the canals which intersect the city. In the background may be seen the imposing ruins of Christiansborg Palace, as well as some of the old whitewashed houses with their casement windows and tiled roofs. The old boats and barges which lie along the sides of the canal make a curious but pleasing foreground, and their quaint appearance harmonizes well with the age and dignity of the surrounding buildings.

Copenhagen is said to have been founded by Bishop Absalon towards the close of the twelfth century, its early name being "Havn" (harbour) or "Köpmannahavn." The present Danish spelling is Kjøbenhavn, meaning literally "merchants' harbour."

The Exchange (Børsen) is perhaps the most striking building of the city. As will be seen from the accompanying illustration, it faces a canal on one side; on the other is a boulevard, so that the whole building can be viewed only from the four corners—never in direct "elevation." At the intersection of the centre gables and the main ridge rises an octagonal lantern, which is surmounted by a curious spire formed of dragons' tails, twisting to a point 165ft. from the ground. The building dates from about 1620, and is an example of the encouragement the architecture of Denmark received from King Christian IV.

The sculptor Bertel Thorwaldsen is perhaps most popularly known by his famous carving in the rock at Lucerne, but his statues of Christ and the twelve Apostles must be scarcely less renowned. These masterpieces were made for and and are preserved in the Frue Kirke in Copenhagen—externally a severely plain building, giving but scant indication of treasures within. Entrance is by a Greek Doric portico with six columns, in the pediment of which is a group representing John the Baptist preaching in the wilderness. The opposite end of the church finishes with a semicircular apse in which the statue of Christ is placed immediately behind the altar. The interior of the church resembles a basilica, the broad pillars of the nave being connected by arches above which a range of Doric columns supports the semicircular vault. The figures of the Apostles are placed on both sides of the nave, one in front of each pillar, the church being lighted from the roof. Each of the statues is a marvellous piece of work, depicting by look and attitude the character of the man it represents. The bending head and stretched-out arms of the Saviour give an air of compassion and tenderness surely indicative of a great masterpiece. Besides these statues, there is a beautiful figure of a kneeling angel supporting a large shell to contain the baptismal water. These statues, although not entirely the handiwork of Thorwaldsen himself, were executed principally by him.

Thorwaldsen spent most of his life in Rome, but in 1838, six years before his death, he returned and settled in his native city. It had been suggested to him that he should bequeath to the city the almost complete collection of his works which he possessed, consisting of plaster models, partly finished works and marble replicas. He eagerly took up the idea, and a sum was gathered to erect a building to house the collection. But as money was not at that time very plentiful in Denmark, the promoters of the scheme were at a loss how to spend to best advantage the comparatively small amount at their disposal. King Frederick VI. offered an old stable near the castle, and it was this unlikely building the architect Bindesbøll converted into what is both museum and mausoleum—the body of the great sculptor being interred, by his own wish, amidst his works. The museum is ranged round an open rectangular court which contains Thorwaldsen's grave in the centre. Most of the rooms are small, and open into one another—an arrangement suggested by Thorwaldsen himself, as he wished the visitor to concentrate his attention on only a few works at one time. Each room contains one statue, two busts and two or three bas-reliefs on the walls. Altogether there are eighty statues, 130 busts, 240 reliefs and three large friezes, besides a great many models and sketches; 124 of the works are

in marble. On the outside of the museum is a representation by means of different coloured cements of Thorwaldsen landing in Copenhagen in 1838. On one wall he is shown arriving amid great rejoicing, and on another his sculptures are being conveyed from the vessel to the museum.

The Glyptothek is also well worth visiting. This collection was begun many years ago by Mr. Carl Jacobsen, a well-known brewer and enthusiastic art patron, when he brought together a few figures for a winter garden. After some years the collection had attained considerable dimensions, and in 1888 Mr. Jacobsen decided to present it to the nation. The exhibits are principally Danish and French works, a number of the former being by Bissen and Jerichau, pupils of Thorwaldsen. There is a remarkable statue of "Princess Alexandra" by Chapu in the Glyptothek. It portrays the Queen in her younger days, the grace and dignity of the seated figure making it striking and lifelike. The companion statue of "Princess Dagmar" by Gauthurin is not quite so fascinating—perhaps because the subject is less familiar.

Close to the Glyptothek are two magnificent parks—the Fredericksberg Gardens and Søndermarken, separated only by the public road. They cover about 90 acres each. It was at Fredericksberg Castle that Queen Caroline Mathilde, consort of King Christian VII. and sister of George III. of Great Britain, lived when she came to Denmark. When the English bombarded Copenhagen, in 1807, General Ludlow made this castle his headquarters. The fine avenues of trees surrounding the castle are a favourite resort of the city toilers, as well as the less cultivated Søndermarken, which is more of a wood than a cultivated park.

Numbers of electric and horse tramcars ply frequently between the city and suburbs, and boarding one of these at the Fredericksberg gates one is soon conveyed back again to the Raadhusplads. The very large Raadhus (town house) has only lately been completed. Hr Martin Nyrop has designed an original and imposing building, and viewing it from different quarters there are many and varied groupings to please the eye. The tower is 330ft. high. Over the principal entrance is a statue of the founder of the city.

Another modern building of interest is the English church of St. Alban, designed by the late Sir Arthur Blomfield in 1887. It is prettily situated among trees near the old moat and ramparts of the "Kastel."

One of the illustrations shows the Amalienborg Palace. In the centre of the square may be seen an equestrian statue of King Frederik V. by the French sculptor Sally. The design shown in the photograph is repeated on the other sides of the square, so that there are four identical elevations. Originally the residences of four noblemen, this has been the king's town palace since Christiansborg was demolished by fire in 1884. This is the aristocratic part of the city, many of the nobility having houses in it.

The Round Tower, which adjoins Trinity Church, is remarkable in having a spiral passage by which to reach the top. Tradition asserts that Peter the Great traversed it on horseback—a feat not difficult of accomplishment, as the passage is broad and lofty and the gradient an easy one. The view from the top is extensive, and, besides picking out the different features of the city, one may enjoy the panoramas of the surrounding country on one hand and the different islands and narrow coast-line of Sweden on the other.

The situation and surroundings of the Palace of Fredericksborg enhance its beauty, rising as it does from a lake on three small islets, against the grand background of a forest. It was here Christian IV. was born, on April 12th, 1577. Although the original Fredericksborg was a handsome and fairly commodious dwelling in Renaissance style, the young king soon decided to build a large new palace there. On January 15th, 1602, he made an agreement with a contractor, Friborg by name, to pull down the old, and on May 2nd to build the main buildings of the new castle, according to a model supplied by the king, the price agreed upon being the apparently modest sum of 15,000 rigsdaler (nine rigsdaler equal to £1). No doubt, however, the "extras" became rather a serious matter. The three wings of the new palace were brought under roof during the years 1606-8, but the king went on adding auxiliary buildings and embellishments as late as the year 1621.

The palace consists of three large four-storeyed blocks, the central being called the King's, and the two wings the Church wing and the Princess wing, respectively to the spectator's left and right. The King's, or central block, is about 220ft. long, the side wings each 190ft. On the fourth side of the courtyard is a long low building or gallery, with an elaborate gateway and various embellishments; some of the sculptures, however, have vanished. The castle on all four sides rises perpendicularly from the lake. The Church wing has a magnificent bell tower, about 300ft. to the top of the spire. From the inner courtyard a bridge leads over the moat to the outer, flanked by two long, somewhat plain, buildings. Opposite is a square, very massive and very handsome, gate or prison tower, which was finished in the year 1621.

When finished, the exterior of the castle was still more gorgeous than it is at the present day, the window-frames and many of the sandstone ornaments being gilded; and there were gilt statues in the arches of the gallery that faces the outer courtyard. The interior was still more elaborate, and some of the apartments were almost unique in their splendour. Foremost among them was the large dancing hall, or, as it was afterwards called, the Knights' Hall; its dimensions are very considerable: length about 170ft., breadth about 70ft., and height



AMALIENBORG PALACE COPENHAGEN.

about 23ft. It was extravagantly carved and decorated, twenty-six sculptors working for seven years at the ceiling alone.

Beneath the Knights' Hall is the church. Two rows of brightly polished pillars divide it into a nave and aisles, a balcony being formed over the latter. The ribs of the arches are gilt, and the altar, the pulpit and the font are all profusely decorated with cast and chased silver figures and adornments, much of them the work of Jacob Mores of Hamburg, and his son. At the end opposite the altar is the organ, and behind this the King's Sanctuary, a most beautiful room.

A fine room on the ground floor is the Rose or the Knights' Room (see centre plate); its arched roof rests on polished marble pillars, and the upper portion of the walls is decorated with fighting stags in stucco, the antlers, however, being real.

A devastating fire destroyed the castle on December 17th, 1859. The beautiful church, fortunately, escaped almost unscathed, as did some of the rooms on the ground floor, part of the marble gallery, the bridge and terrace, besides the buildings outside the inner courtyard. The walls, however, were sound; and as many costly ornaments and other articles were saved, it was decided to rebuild the castle in the original style, the King very handsomely heading a national subscription started to raise the necessary funds. Like a veritable phœnix, Fredericksborg rose again from its ashes. It never again, however, became a royal residence, but is now a richly-endowed National Museum.

(To be concluded.)

CONWAY SUSPENSION BRIDGE.

MR. JOHN J. WEBSTER, of Westminster, the engineer called in to advise the Town Council of Conway as to the present condition of the Suspension Bridge, and whose report was regarded as so alarming that a watchman was stationed on the structure to prevent coaches or other heavy vehicles crossing at more than one at a time, recently sent in a supplemental report recommending that the following alterations be made :—

The chain links, not being strong enough, should be supplemented by either another set of links or by steel cables; and, as economy of construction is an important consideration, it is recommended that steel cables be adopted, being less than one-half the cost of the links. It would require two cables about 4in. diameter, which could be fixed above and close to the present top links.

The present parapet lattice work, which is very fragile and corroded in places, to be removed and replaced with stiffening girders of a more substantial nature. These girders would reduce the vibration considerably and so increase the life of the bridge.

All the suspension rods and connections to be renewed with others of stronger construction, and other minor repairs; the whole estimated to cost £4,750. Mr. Webster continues: —"It was suggested that, as the roadway was so narrow and dangerous to foot passengers, a footway might be placed outside the present bridge. This can be done by means of cantilevers attached to the proposed new stiffening girders, which would carry the footway outside the bridge on the Deganwy side. The footway would then pass round the towers on to the existing approaches. This would involve the removal of the present castellated stone parapet round the tower, but I do not think that this would mar the general appearance of the bridge. I estimate the cost of the footpath over the bridge and approaches, 5ft. clear width and parapet railing 4ft. high, including the extra cost of the cable to carry the additional load, to be £1,750."

LOUISIANA EXHIBITION.

THE Foreign Office has recently signified the acceptance by the Government of the invitation of the Government of the United States to take part in the Universal Exposition to be held in St. Louis, 1904. The exhibits to be made by the Government, in its official capacity, will be limited to education and the fine arts. The former will be entrusted to the Education Department, one of whose representatives, Michael E. Sadler, M.A., Director of Special Enquiries, has recently been in America as a delegate to the National Educational Association, which has just held its annual meeting in the city of Minneapolis.

The organisation of the fine art exhibit will be made under the general advice and control of a committee of the Royal Academy, Sir Edward Poynter, the President, having already taken steps in this direction. The general feeling is that the exhibit will include a wide range not only of the fine but also of the applied arts, the authorities of the Exposition having paid much attention to this enlargement of its scope and purpose.

Later, facilities will be provided for exhibitors in every line of industrial activity—agriculture, manufactures, mining and fisheries. The details of these have not yet been arranged, nor have any announcements been made thus far by the Foreign Office, under whose auspices the invitation has been formally accepted and the initial arrangements perfected, as to the funds to be devoted to the carrying out of the undertaking.

France has made a grant of 600,000 frs. (£24,000) for preliminary organisation and the expenses of a commission which has already visited St. Louis. It is announced that a special building (the site for which has already been selected) will be erected upon the Exposition grounds, the Petit Trianon having been chosen for reproduction. Largely increased grants will be made later, so that the participation of the French Government and people is likely to be a conspicuous feature. The space already bespoken is 40,000 sq. metres for exhibits and 5,000 sq. metres for a pavilion.

Japan has appointed a Royal Commission, and has set aside the sum of 2,500,000 yen (£250,000) for the erection of a building and for making an exhibit which shall be complete throughout the whole line of its industries, devoting special attention, however, to artistic products. This commission will be composed of some of its leading statesmen, and perhaps headed by the Emperor or some member of his family. Canada has made a preliminary grant of 125,000 dols. (£25,000), has selected the site for its building, and will make very elaborate exhibits in agriculture and forestry, as well as in its manufactures, railways and mining, besides devoting special attention to its fisheries. Italy will give its official attention to a show of fine and applied arts, including glass and mosaics, which promises, if the plans are carried out, to be more complete than any it has made in any previous exhibition. Mexico and several of the republics and countries of South America, which last year displayed fine exhibits at the Pan-American Exposition at Buffalo, have already accepted the invitation, and will make a strong show of the products peculiar to their soil and climate. In addition to the formal acceptances, the Emperor of China has sent a commission to St. Louis, apparently for the purpose of concluding upon the most direct form in which the Empire may undertake a display. The German Emperor has been consulted in regard to the Universal Exposition, and it is apparent that the desire is that the nation shall be fully represented, both in regard to trade and education, and also in the fine and applied arts section. Further, among the older but now progressive nations, Korea has notified its intention to be represented officially. The Imperial Government at Constantinople has decided to participate and to send a commission to the Exposition, and is encouraging the merchants and manufacturers to become exhibitors. And a movement in Russia is in progress to attain the same ends. To add to the before-mentioned, several other countries of Europe and Asia have signified their intention to be represented with commissions or with official exhibits of some kind. In fact, the probability is that before the end of 1902, while still about a year and a quarter of time will remain for perfecting arrangements, practically every important country in the world will have accepted the invitation to take part.

It will be remembered that the Exposition was originally planned to open on May 1st, 1903. The management insisted upon their readiness to go on and complete their work within the period originarly fixed, but it was universally represented to them by foreign countries, by a good many of the individual States in America, and by some of the most important exhibitors that a year's grace would be most welcome. Accordingly, Congress passed a law authorising the postponement. That body had appropriated about 5,500,000 dols. of which 5,000,000 dols. was its contribution of one-third to the capital stock of the Exposition, like amounts being contributed by the city of St. Louis and by a private company. The last Congress, in taking official action, has increased the total contributions of the Government, until they now amount to 6,308,000 dols., a sum wholly unprecedented in the history of international exhibitions. A considerable proportion of the increased sums will be devoted to special exhibits, fisheries being one of the most prominent items. Further, besides the official grant from Washington, the majority of the States in the Union have officially voted a substantial sum for individual buildings in which to present their own peculiar products or to illustrate their history.

But it is not Congress alone that has contributed to this enlargement of plan. The management, finding that this extension of time has been unexpectly granted, have enlarged their scope and plan. This does not so much apply to the mere size or quantity of exhibits, but it has permitted them to give an attention to quality which might have been impossible in the shorter time. Among other things, they have increased the ground space to be used. Originally, this was about 1,000 acres. It has now been so enlarged that it will reach from 1,200 to 1,400 acres. This will include a large tract of land owned by Washington University of St. Louis, upon which a number of new and permanent buildings have already been erected. Substantial progress has been shown in the making of lakes, and several of the more important bufldings of the 200 acres of floor-space to be covered by the Exposition are already far advanced in construction. Of the additions, 75 acres have been set aside for an international military camp and parade ground; 130 acres for the 30-acre Agricultural Palace and live stock exhibits, important features in the Exposition to which it may be anticipated all the world will contribute; indeed, the ground for service is about twice as extensive as that used at the Chicago Exhibition.

The plans are in such a forward state of preparation as to justify the confident expectation that St. Louis will present the one example of an exhibition really ready on the day of opening. The postponement has also promoted the enlargement of the local transportation facilities. The London offices of the Universal Exposition, St. Louis, are at Sanctuary House, Tothill Street, Westminster, London, S.W.



THE ROYAL EXCHANGE, COPENHAGEN.

A NEW LUNATIC ASYLUM.

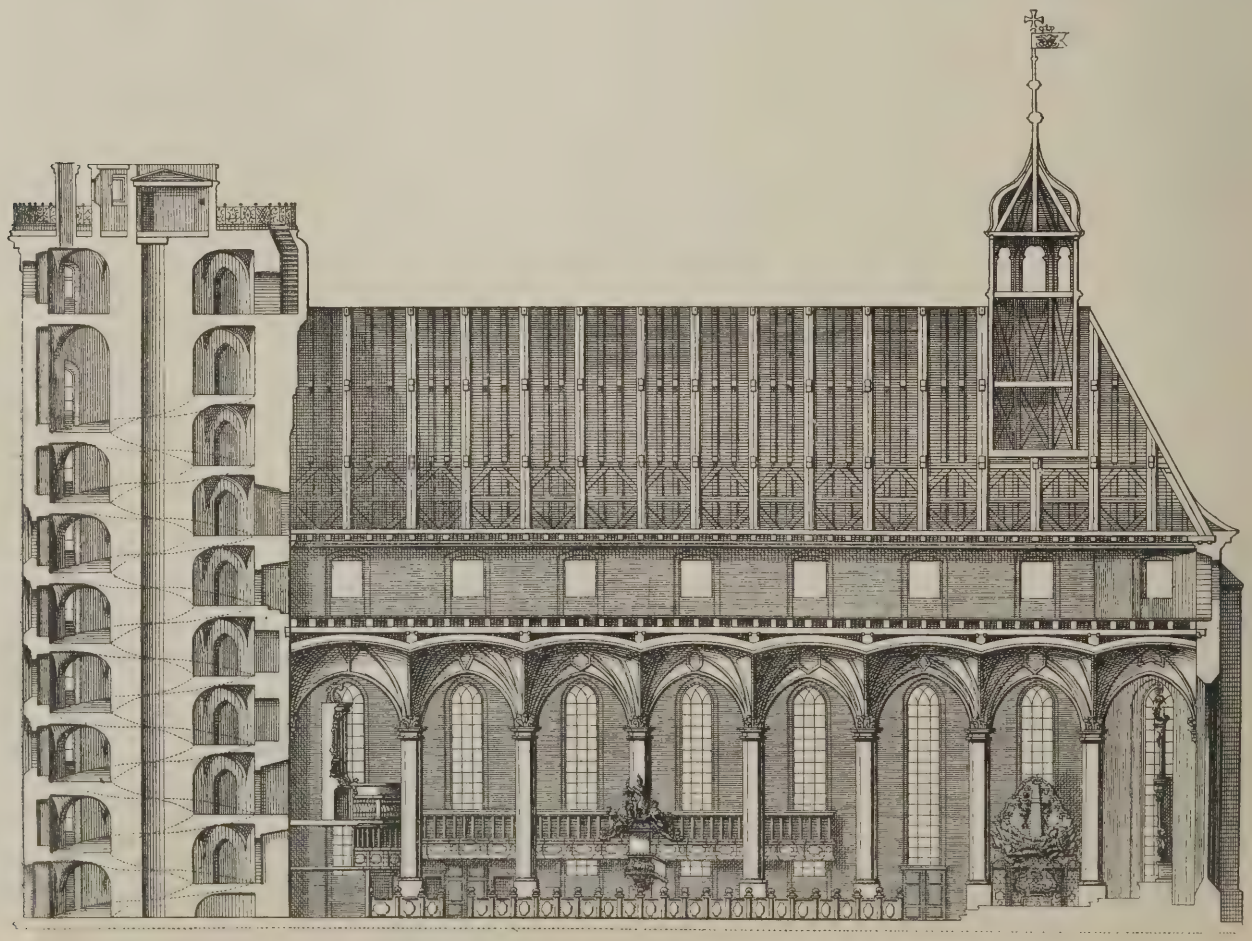
AT Talgarth an asylum is being jointly erected by the Brecon and Radnor counties. The buildings cover nearly seven acres of ground. The contract, amounting to about £120,000, was entrusted to Mr. Watkin Williams, of Pontypridd. After a little surveying the contractor fortunately found a bed of stone for the buildings at a distance of about half a mile, and this has now been quarried on two sides, the stones being conveyed to the site from one of them over an incline made on the edge of a deep dingle. Clay, too, was found near the site, and all the bricks used, numbering about three millions, have been made on the spot. There are six blocks of buildings for the patients, those for males and females respectively being on each side of the administrative section. Two of them are for epileptics, two for recent and acute patients, and two infirmaries, one being a replica of the other. In the entrance block are a suite of rooms for the medical superintendent, clerks, and committee-rooms and reception-rooms for visitors, and rooms for male attendants on one side and for females on the other. There are four "padded" rooms in the buildings, the sides and floor being made of thick, pliable rubber, every possible regard being paid in their construction to ensure safety and comfort to the unfortunate patients who may be confined in them. Each room has a window, and in the inner door, which has a spring lock, is a small piece of glass which gives a full view of the interior from the outside. In the administrative block is a spacious, lofty dining and recreation hall, with a stage at one end and dressing-rooms adjoining. The roof is arched, the ribs being supported by pilasters. It provides ample accommodation for five hundred persons to dine together, is centrally situated, access from all parts being obtained by means of corridors which run round the whole of the building, one of them being about 500ft. long adjoining. On the opposite side of this corridor are the dispensing-rooms. In the same block is a huge store-room, with cellar beneath, and a laundry fitted with modern appliances. There are also a workshop block and an engine-house. There are two floors throughout, both being similar, and the whole of the corridors, granolithic stairs, and ceilings on the first floor are fireproof. The woodwork is clean varnished pitch-pine, and the wood floors are pitch-pine, cleaned for wax-polishing. The lavatories and bathroom are dadoed with white-glazed bricks.

The exterior work is native stone walling, Grinshill stone dressings, and the inside of the walls is lined with bricks. Accommodation is provided for 350 patients, but provision has been made for extensions. In the administrative part, however, accommodation has been provided to meet the wants of 500 patients. Opposite the main entrance is a spacious church, built on Gothic lines, and to the right is the mortuary and a detached isolation hospital for both sexes. In the immediate vicinity will be a sewage farm. A reservoir has been constructed on rising ground above the asylum. It is covered with a roofing of corrugated iron, and has a storage capacity of 144,000 gals. The reservoir has a depth of 7ft., and the filter beds are enclosed by a high wall. A big tank has been sunk into the ground to store the rainwater for laundry purposes, and it is conveyed from the roofs of the various blocks by means of pipes. The lighting of the premises has been so arranged that the medical officer can switch off the light in one room after he had passed through and turn it on in the next at the same time.

The architects are Messrs. Giles, Gough & Trollope, Craven Street, London, who designed the Parc Gwyllt, Bridgend, and several other asylums. The superintending clerk of the works is Mr. W. T. Creedy, who has been appointed by the architects to superintend the erection of the workhouse and infirmary being built at Hammersmith at a cost of £200,000.

THE PUBLIC HEALTH CONGRESS.

THE Annual Congress of the Royal Institute of Public Health was opened at Exeter last Thursday, the Earl of Iddesleigh, the president, in the chair. In the course of his address the president referred to the Royal Commission on Sewage Disposal, of which he is chairman, and said that the second report of the Commission just issued contained reports of high value. He paid a tribute of sincere respect to the two great communities of Manchester and Leeds. The amount of public spirit that both of them had shown in endeavouring to solve the difficulties attendant upon any satisfactory system of sewage disposal was beyond all praise. He regretted that he could not give some idea of the probable date at which the Commission would issue its final report and recommendations. They would soon, he hoped, be able to publish the results of a prolonged investigation into the treatment of sewage on land; and their experts were now making elaborate parallel examinations of some of the processes of filtration by artificial means. But he feared that they would ultimately be obliged to bring their proceedings to an arbitrary close; for, however much they could learn, he was quite certain they could never come to a point at which they could say there was nothing more to be learned. The subject was inexhaustible. Another subject of great importance was that of the use and abuse of our water supplies. If he were an absolute Emperor he should appoint a department of the Government to deal solely with water administration. He should expect that depart-



SECTION OF ROUND TOWER AND TRINITY CHURCH, COPENHAGEN.



THE ROYAL SHOOTING BOX ("EREMITAGEN"), COPENHAGEN.

ment to prove beneficial to the community by the wise exercise of its discretionary powers and to a greater degree by reason of the knowledge which it would slowly accumulate and place at the disposal of the country. One simply could not exaggerate the vital consequences of exact knowledge concerning water supplies, either in respect of health or wealth. Without exact knowledge the people were in perpetual danger of recklessness on the one side and of fads on the other.

Mr. Mawbey's Address.

Mr. E. G. Mawbey, of Leicester, in the course of his presidential address in the section devoted to engineering and architecture, enforced the importance of pure air and water, a dry and clean sub-soil, the diminution of noise from traffic in our streets, exercise and personal cleanliness, with healthy and cheerful homes and surroundings, and plenty of honest and well-directed work. In order to obtain pure air there should be adequate public and private scavenging and cremation of refuse, efficient ventilation, wide thoroughfares, and ample intercepting streets, proper construction, cleansing, and ventilation of sewers and drains, and other sanitary arrangements; open spaces in centres of population, ample air spaces in dwellings and around our factories and workshops, to ensure light and air; the prevention and abatement of smoke, due restrictions upon noxious trades, electrification of our poisonous underground railways, the drainage and prevention of the pollution of subsoils and the diminution of malarial and other troubles by the reclamation of swamps; improved drainage and carrying out of floods prevention schemes. The legislation for the last-named, he urged, was far from what it should be in the way of providing facilities for small local authorities to rid the districts and inhabited areas from disastrous floods. Supplies of pure water were to be ensured by the satisfactory disposal and efficient purification of the sewage of every town, village, and habitation, the prevention of fouling of rivers, watercourses, and springs; and by the compulsory provision of a practically pure public water-supply, not only to our large towns, but also throughout all rural districts where large populations were now depending for their supply upon shallow and frequently highly-polluted wells in close proximity to the dwellings. There was great need for a movement, in conjunction with the Local Government Board, for the better control and utilisation of our catchment and drainage areas, so as to facilitate and even enforce the joint schemes by groups of municipalities and local authorities for the supply of wholesome water within the various watersheds of the country. In order to encourage exercise and personal cleanliness, ample provision of recreation grounds, gymnasia, baths and open-air bathing stations, &c., was indispensable in all thickly-populated districts. It was notable that the architects of the present day were making an earnest study of hygiene. The duties of sanitary and building inspectors were of vital importance, not only in discovering insanitary conditions and defects in construction, but in dealing with the neglect, misuse and mismanagement of even the best sanitary works which could be provided. There was, perhaps, no more difficult problem to be solved than the successful purification of sewage, and certainly nothing had given so much hope of a satisfactory solution of the difficulty as the recent experiments which had been conducted on bacteriological lines.

Sanitation in Rural Districts.

The proceedings were continued on Friday, Sir C. Cameron, of Dublin, presiding. Captain G. Phillips, of Frimley, Surrey, read a paper on the necessity for teaching the principles of public health in rural districts, in which he strongly advocated the appointment of sanitary inspectors by the Local Government Board of a higher order than the local inspectors, who should make thorough inspections of all the sanitary appliances in every cottage throughout the rural districts. They should also teach the people practical sanitation, pointing out the existing defects, and encouraging the people to correct all injurious and insanitary habits. Mr. Tolson (Exeter) advocated the creation of a ministry of public health and the appointment of independent sanitary officers over large areas. They could not expect too much of a medical officer of health who had a large district and £40 a year. Professor Smith said one was ashamed of the condition of things in the villages. The generality of farms were anything but what could be desired. He moved that the council of the institute be requested to consider what steps should be taken to urge the Government to improve the sanitary condition of rural districts.—The President (Sir C. Cameron) said there was some excuse for the idea that sanitary work was not so necessary in rural districts as in towns, seeing that the death-rate was 15 per 1,000 against 20 per 1,000 in towns. But the urban districts were menaced by the condition of things in rural districts through the food supplies, especially milk and butter. Therefore the towns were as much interested as the villages in the sanitary state of rural districts.

Several papers were read on the question of "Hygiene in Public Schools," and a resolution was passed expressing the opinion that great benefit would result from the teaching of the rudimentary facts of hygiene in elementary schools.

In the section for engineering and architecture Mr. T. Cain (City Engineer of Worcester) contributed a paper on typhoid fever in relation to water supply. It had been said, he remarked, that the typhoid case rate of any town was a fair index of the hygienic quality of its water supply. Whether that statement expressed a general truth was one of the most serious questions that could engage the consideration of those authorities who were charged with the health of the public. If the answer proved to be in the affirmative, there could rest upon the water authorities of those towns which suffered from a high typhoid case rate the responsibility of effecting such changes in the source of the water supply, or in the treatment of it before distribution, as would prevent it from being any longer a vehicle of disease germs to the consumer. His experience and investigations convinced him that the proposition expressed a general truth. He was conscious of the responsibility he incurred in attributing almost universally to



THE ROUND TOWER, COPENHAGEN.

the water supplies the typhoid incidence, not of this country, but of any others. But in a matter of such serious import as the public health he had felt bound to give expression to his convictions, hoping that others might pursue the investigation further, and believing that in the end only good could result.

Mr. Frank Lesie Watson, civil engineer, read a paper on "Recent Practice in Refuse Disposal and Utilisation Plant," in the course of which he said that the most important and successful electric lighting and destructor plant hitherto erected was that of the Fulham Corporation.

Views and Reviews.

American Surveying.

The appearance of a new and comprehensive work upon land surveying is a matter of considerable importance, and especially is this the case with the book now under review. Mr. Nugent, as an American himself and Associate Professor of Engineering in an American University, has produced a volume which illustrates the principles of surveying as seen from the American point of view with remarkable clearness, and its interest to an English reader lies largely in the divergencies from English practice which are in consequence unconsciously brought into prominence. In America the surveyor has to deal with large tracts of open country, practically unexplored, and consequently comparatively inaccurate surveys plotted to a small scale will serve his purpose, speed and approximate correctness being the main requirements. Thus the theodolite, which is the principal English instrument, and without which work of great precision can scarcely be accomplished, is rarely used, being replaced by the compass for all ordinary work, where the risk of accidental attraction of the needles is not great. To an English surveyor who has learnt to consider accuracy as the most important of all desiderata, this appears to be radically wrong, and the impression is not lessened by the amount of trouble which is taken to "balance" (otherwise to "fudge") the survey after it has been plotted, in order to make it close, by averaging the total error amongst the various lines and angles. The impression is irresistible that it would be far better to make an accurate survey in the first instance, and it is difficult to follow Mr. Nugent in his summing up of the situation, after devoting no fewer than ninety pages of his book to compass surveying, in the words: "For country work, generally speaking, unless the ground is entirely clear it is waste of time to use the more accurate instruments." Theodolite traversing with the aid of traverse tables should be little less rapid, and very much more exact.

In other respects, some of the American methods are distinct advances upon those in use in this county. The employment of the 100ft. (or longer) steel tape in place of our heavy chain has been for many years advocated here; but in America it is usual, and the tape is made the more useful by an extra foot divided into tenths being added at one end, thus bringing the lineal measurements into agreement with those on the levelling staff.

Some of Mr. Nugent's suggested forms for Field Books—we do not know whether they are common American types or new ones of his own devising—are remarkably good; but there is little opportunity in a limited notice such as this of calling attention to more than one prevailing common feature which they possess in having the right-hand pages of the field books alone ruled for the usual entries, the left-hand pages being left blank for notes and sketches. Thus for an ordinary chain survey the book when open shows its right-hand pages only ruled with a central coloured line to represent the chain.

The American instruments, though differing in detail from those of English make, show little advance uponthem so far as can be judged from illustrations and descriptions; and probably they differ nothing at all in reliability. It seems to be customary to use a sighting target upon the levelling staff, which can be slid up and down by the staff-holder so as to make long levelling sights possible—one would think at a certain sacrifice of accuracy for ordinary section levelling, but with gain of speed, at least in contouring, which is much more commonly employed than with us. It would be a great gain in England if contour lines were more frequently shown than they are, especially on site plans for competitions, the American practice being in this matter much to be preferred.

On the whole, Mr. Nugent is to be congratulated in having produced a careful and exhaustive work, which can be read with most advantage by the surveyor who is already skilled in practical work and wishful to obtain a knowledge of the complex theories upon which much of it is based.

"Plane Surveying," by Paul C. Nugent, A.M., C.E. New York: John Wiley & Sons. London: Chapman & Hall, Ltd. Price 15s. nett.



THE TOWN HOUSE, COPENHAGEN. MARTIN NYROP, ARCHITECT.

Surveying & Sanitation.

Mr. John Richard Eve died recently. He was a well-known land agent and surveyor of Bedford, having an extensive practice extending over a large area. Born in 1833, he assisted his father, also a valuer, for many years, and in 1865 joined the firm of Page & Harding, of St. Albans and Hitchin. In 1886 he dissolved partnership and moved to Bedford where later his son, Mr. Trustram Eve, joined him in partnership under the present title of J. R. Eve & Son. Mr. Eve was widely known as a surveyor and agriculturist. For many years he had been a member of the leading societies in connection with his profession, notably the Surveyors' Institution and Farmers' Club, of which latter he was chairman in 1901. For the last twelve years he had been president of the Valuers' Association for Hertfordshire, Bedfordshire and Buckinghamshire, and for a long time took a leading part in the council of the Bedford Agricultural Society. He had a large practice as a rating surveyor, his services being frequently retained as witness in rating and other cases.

ST. MARK'S CAMPANILE.

THE ROYAL ACADEMY OPENS A SUBSCRIPTION.

SIR EDWARD J. POYNTER, P.R.A., writing to the "Times," says that artists feel the destruction of St. Mark's Campanile as a personal loss, so conspicuously was it the key to the endless pictures which the beautiful city presents from wherever it may be seen, and so associated was it in our minds with the romance of its exquisite surroundings. Its rebuilding, thinks Sir Edward, is a necessity, if only for its place in the panorama, and has been voted by acclamation. There seems to be a technical illegality in the way of the Royal Academy using any part of its funds for such a purpose, and Sir Edward Poynter was therefore bound to make his appeal for subscriptions towards the reconstruction, which it is understood is definitely decided upon, to the members of that body individually, and it has been enthusiastically taken up and warmly responded to. The co-operation of the general public is now invited. The treasurer of the Royal Academy, Mr. T. G. Jackson, R.A., has kindly signified his willingness to receive and keep in hand all donations sent to him and to deliver them to the proper authority when the time comes, and intending subscribers are requested to address their communication to him, at the Royal Academy of Arts, Piccadilly.

Other Buildings in Danger.

A correspondent of the "Scotsman" states that he has heard from the lips of one in the highest authority and position in Venice that even St. Mark's Church itself is not in a satisfactory condition, notwithstanding the Government maintains a school of mosaic workers in the church itself simply to keep the fabric in repair. When cracks have appeared, it is stated, they have been simply filled with cement, and the mosaics put over them, leaving the cause of the damage unremoved. It appears that the great vault above the gallery at the west end of the church, which contains frescoes of the Last Judgment, and more especially the vault next it, above the nave of the church itself, which has scenes from the Book of Revelation, stand both in need of urgent repair. The great cupolas, too, which give such an Eastern character to the church, are said to be out of order. These cupolas are all double —that is to say, the cupolas one sees outside are not those one sees inside the church. The inside cupolas are of brick, are comparatively low, like inverted bowls, and bear the mosaics. The outside cupolas, raised over them, completely covering them, are of sheets of zinc and lead, and are very high, cylindrical in form for two-thirds of their height. There is thus a large clear space between the inner cupola and the outer one that encases it. It is these inner cupolas that are out of order. For some time workmen have been repairing the one next the vaults spoken of above, which is that of "The Descent of the Holy Spirit at Pentecost." It is also said that the great central cupola, that of the "Ascension of Our Lord," the main cupola of the church, is also out of order. Three years ago the mosaics in this cupola were all restored, but if the cupola itself is in danger the reparation of them serves nothing. Commendatore Boni has appointed a special commissioner to examine and report.

The report that the great eastern window of the church of S. Giovanni and Paolo has fallen in is incorrect. Whilst a morning service was going on, a piece of the quatrefoil fell. An examination showed that the irons of the great window were very much corroded, and that they were too weak to support for long its weight. A secret door was also discovered behind the high altar, and a secret passage in the wall itself under and beside the window, all of which tended to weaken its support. Some cracks were also discovered in other parts of the building. There is no immediate danger, and the church is closed for repairs.

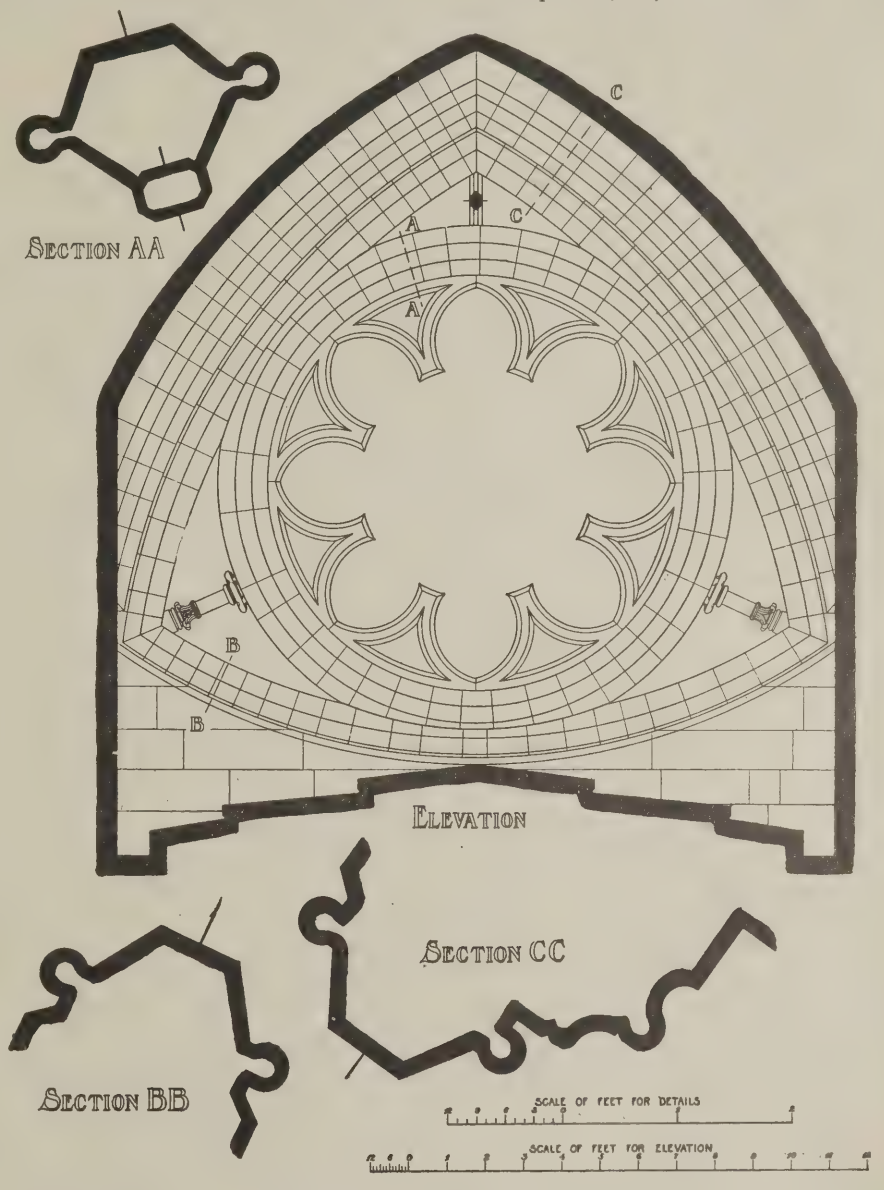
Another church that has been discovered to be wretchedly out of repair is that of S. Giobbe, the erection of which goes back eight centuries. This church stands in a poor quarter of the city, Canareggio, not far from the Ghetto, and nobody has paid any attention to it for centuries. It seems the bell-ringer endangered his life every time he pulled the bell-rope. The whole of the top of the campanile, where the bells are, is in a tumble-down condition. Of course the bells have been stopped and the church closed.

The campanile of San Stefano threatened a total collapse like St. Mark's, and all the houses around it were cleared of goods and people.

The list of the campanile is such that it almost hangs outside the tower. There was a fear that nothing could be saved, but now that the campanile is being bound up with poles and beams and hoops of iron, there is a hope of the possibility of saving the bells by lowering them down the campanile itself inside. The clock has been already saved.

More houses have been condemned. One at the Rialto, in Campo St. Bartholemeo, gives cause for alarm, whilst the instant demolition of another behind it at San Lio has been ordered, as it is sinking daily. Certain palaces, too, on the Grand Canal are being officially examined, but as yet no report of their state has been issued.

All the ecclesiastical property in Venice—churches, campaniles, &c.—belong to the State. Indeed, it is illegal for the Roman Catholic Church to hold real property in the land. The Government, however, entrusted the care of that property to the different church vestry boards. The young and able Marquis of Cassis, the Prefect of Venice, who represents the Government, has ordered the enquiry that has brought to light how lamentably neglectful of their trust these vestry boards have been. He has by a special decree dissolved that of St. Mark's Church, and probably he will have to dissolve all and commit the care of the ecclesiastical property entirely to civil boards.



WHEEL WINDOW, AMIENS CATHEDRAL. MEASURED AND DRAWN BY P. R. STRONG.

The Procuratie Vecchie, on the north side of the piazza of St. Mark, are in a worse condition than was suspected. A commission of twelve experts has been chosen. These Commendatore Boni has divided into six commissions of two persons, each charged with a minute examination of a separate part of the line of building, their reports to be given in in one week. Meantime he has ordered that two arches near the centre of the colonnade should be built up, in order that the pilasters that sustain them, which are cracked and broken, may be taken down and new ones erected in their places. He has also ordered the removal of the goods that are stored in the warehouses in the Procuratie, especially marbles, the weight of which is straining and damaging the buildings.

Enquiries Answered.

The services of a large staff of experts are at the disposal of readers who require information on architectural, constructional or legal matters. Questions should in all cases be addressed to the Editor. The querist's name and address must always be given, not necessarily for publication.

Formulae and Estimates.

HARLESDEN.—NOVICE writes: "What is the best book to enable me to work out the formulæ in Hurst's 'Pocket Book' for strains and stresses on roofs beams, piers, &c.? (2) Please name a book dealing with approximate estimates per ft. cube for different classes of work. (3) What would a church with 14in. walls, fair face inside and out, stone dressings to windows and chancel arch, without furniture, cost per ft. cube? (4) Do you consider a roof-truss as shown in sketch (not reproduced) sufficient for this span?"

(1) The formulæ given in Hurst's Pocket Book can all be solved by the aid of elementary algebra. A good book on this subject is Hall & Knight's "Elementary Algebra" (Macmillan, price 4s. 6d.). (2) "A Price Book for Architects and Engineers," by T. E. Coleman (E. & F. N. Spon, Ltd., price 5s.). (3) Churches are usually roughly estimated at per sitting. For a church such as you name the cost would work out at about £6 per sitting. (4) We cannot properly answer the question without knowing the roof-covering proposed. You can easily work out the stresses for yourself and the sizes of timbers and iron tie rods to bear them by the rules given in Hurst or Rivington.

Strength of Half Brick-Wall.

BRIXTON.—E. E. B. writes: "What load per ft. run can safely be placed upon a 4½in. partition brick wall constructed of Fletton bricks in cement stiffened by hoop-iron bond? The height of storey is 9ft. 6in., and the greatest distance from one return wall to return framed and board partition is 12ft. 6in. The wall itself is supported on a steel joist, and supports a fire-resisting floor above (4¾in. by 1¾in. rolled steel joists, 3ft. apart, filled in with coke breeze concrete). I originally proposed to use a 2in. by 4in. stud partition, but the district surveyor required a fire-resisting floor above. Hence the proposed alteration. A 9in. wall is undesirable, as it would increase the load upon the joist below, which is already calculated to take a stress of 6¾ tons in the flanges. Calculated load, including wind-pressure, comes out at something over 24¾ cwts. per foot run. See sketch (not reproduced)."

A 4½in. wall, 9ft. 6in. high, loaded uniformly along the top is under the conditions of a pier or column 25 diameters high. The maximum safe load on a short brick pier, Fletton bricks in cement, is 6 tons per sq. ft. Upon a pier 25 diameters high this will be reduced under the most favourable circumstances to not more than 1½ tons per sq. ft. In 1ft. run the area will be ⅜ of a sq. ft. making the maximum safe load per ft. run ⅜ by 1½ = ·5625 tons or, say, 11¼ cwt. per ft. run. The hoop-iron bond cannot be considered as adding anything to the virtual strength of the wall. A decision under the London Building Act recently held that a 4½in. brick wall was not an allowable construction as it could not be properly bonded (see the "Standard," 8th July, 1902). Whether or not the decision will be upheld in the superior courts, this construction is not suitable in the present case, and there are other objections to the arrangements shown in the sketch.

HENRY ADAMS.

Measuring Mouldings.

HESSLE, YORKS.—ACCURATE writes: "Will you please state the best way to get accurate details, full size, of Early English mouldings? I find working with lead rather difficult, as you cannot get the lead out without spreading it. Having got the full-size detail of a moulding, is there any convenient way of reducing them to, say, 1in. scale accurately?"

The Cymograph, Professor Willis's invention, affords the best means of getting accurate profiles of incut mouldings. This instrument is described and illustrated in R. Phené Spiers's "Architectural Drawing" (Cassell & Co.). It is not usual to make reduced drawings of mouldings, but a convenient way would be to employ a reducing "Cymograph,"; the ordinary method is to find points on the curve, from the full-sized details, and draw the rest by hand.

Clerk of Works' Power to Damage Materials.

BRADFORD.—LEEDS writes: "A clerk of works has condemned several pieces of wrought ashlar. Is he within his right in so spoiling the stones that they will not do for the position they were intended for; yet not so far damaging the stones that they cannot be utilised for some other purpose on the works?"

The clerk of works has no right to damage any other person's property, unless there is a clause to this effect in the specification or agreement.

Architects' and Surveyors' Charges.

WIGAN.—E. J. P. writes: "Where can I obtain a complete schedule of architects' surveyors' charges, &c.?"

In "Specification No. 5," price 5s. nett.

White Stucco.

MANCHESTER.—W. L. writes: "Is it possible to make up a cement stucco that when dry will be of a white or cream colour? On some work just completed the stucco is composed of 1 part Portland cement, 1 of sand and mixed with lime mortar. It has dried a dirty grey colour."

It is impossible to obtain a permanent white plastic surface for exterior work. Painting with a suitable oil paint will indurate the surface and retain the colour longer than whitewash. A fairly good white or cream-coloured surface can be obtained by using Portland cement in combination with white aggregates, such as silver sand, white spar, white marble sand, and Bath stone dust. Portland cement and sharp sand should be used for the floating coat, taking care that the joints of the brickwork are freed from lime mortar, and the whole surface thoroughly cleaned and wetted. The fining coat is composed of 2 parts of Portland cement and 3 parts of white aggregate. An extra white surface can be obtained by mixing the cement with a tenth part of well-sifted powdered whiting. The cement and whiting should be well mixed together in a dry state, and then the silver sand or other white aggregate added and thoroughly mixed before the mass is gauged. The fining coat should be finished with the trowel to get a close, smooth and impervious surface, to allow the rain to run off freely, and to resist the effects of rain and snow. A smooth surface helps the rain and wind to wash and blow off surface dust.

The Lady Chapel at Hexham Abbey.—A petition, accompanied by plans by Mr. Temple Moore, has been deposited in the registry of the Consistory Court, proposing to alter the east end of the choir and rebuild the Lady Chapel. The estimated cost is £10,500.

Law Cases.

Workmen's Compensation.—The case of *John Stones* v. *Richard Baynes* recently came before Judge Steavenson at the Ulverston County Court. This was an application under the Workmen's Compensation Act for the diminishing of a weekly payment. The applicant, John Stones, it was stated, was a revolving shutter manufacturer at Rosside, near Ulverston, and the respondent, Richard Baynes, was formerly in his employ as a joiner. The accident happened on the 18th August, 1900, and resulted in the loss of the left hand of the respondent. At the time the compensation under the Act was settled at 15s. a week, being the full 50 per cent. of his wages, his previous earnings being 30s. a week. Of course the loss of the hand had affected the man's working capacity over and above the question of its healing; but it was now submitted that the respondent was no longer totally incapacitated from work. He submitted that his Honour might reasonably say that he was able to earn, say, £1 a week, which would entitle the applicant to have the present weekly payment reduced accordingly. In support of his application he quoted the cases of *Davis* v. *Timmins* and *Challinor* v. *Smith* (p. 506, 1899, Queen's Bench reports, Vol. 2). His Honour did not think there were any grounds for reducing the award, and the case that had been quoted did not really apply. The man, it is admitted, has not got any work to go to and there is no suggestion that there is work ready for him which he declines to take. Therefore the application was refused. Costs were allowed on the B. scale.

Wood Roads: Important Decision.—An important decision to the public and to local authorities was given in the City of London Court recently by Judge Lumley Smith, K.C., and a jury. A lady sued Messrs. William Griffiths & Co., Ltd., contractors, to recover £50 for personal injuries suffered by her. She was crossing Seven Sisters Road on March 15th last when she slipped and fell, injuring herself very much. She was laid up for some weeks, and had to go to Margate to recuperate. She now demanded compensation. The defendants had just repaired the road as contractors for the Islington Borough Council, and the plaintiff complained that they had thrown small stones on the top of the wood paving, thus making it slippery. The stones, it was said, should have been put on while the pitch which covered the wood was warm and soft, instead of waiting until it became cold and unimpressionable. A glassy, slippery surface was the result. Cement should have been used instead of tar. For the defendants, counsel explained that the case was of much importance to all local authorities, as the only method of laying woodpaving was being assailed. All the borough councils and their contractors used pitch instead of cement, and the defendants ought not to be held responsible for the plaintiff's accident. Roads must be repaired and the public must take more care when crossing roads newly laid. Mr. Barber, the engineer to the borough of Islington, said the work was done quite satisfactorily. The jury, however, in awarding the plaintiff £25 for her injuries said they considered that cement should be used. Judgment accordingly, with costs.

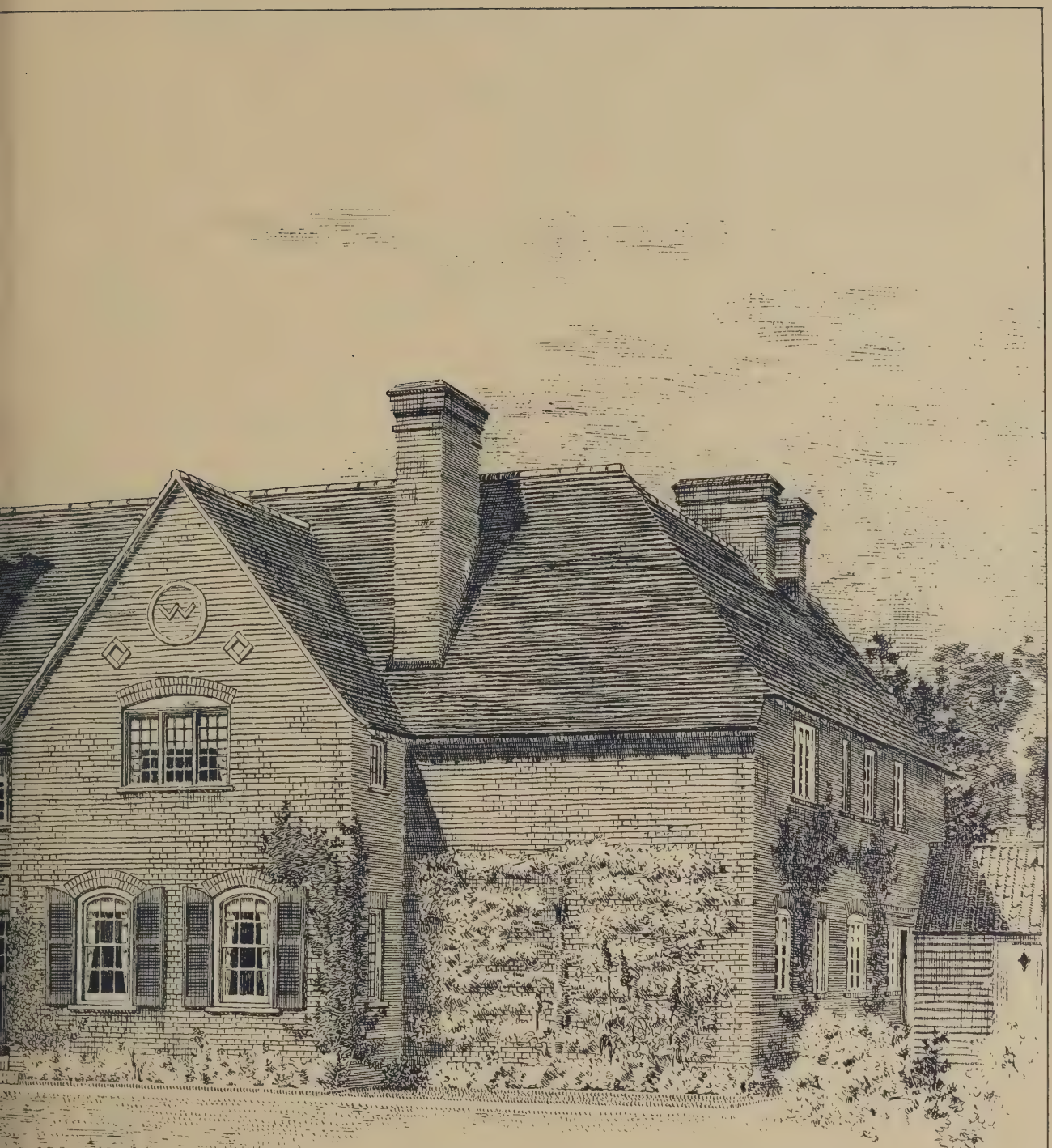
A New Presbyterian Church at Builth Wells is being erected at an estimated cost of £4,500 by Mr. D. W. Richards, Newport, from plans by Messrs. Habershon, Fawckner & Groves, of Newport and Cardiff.

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Supplement to
THE BUILDERS' JOURNAL AND ARCHITECTURAL RECORD,
Wednesday, August 27th. 1902.



ERNEST NE



HOUSE AT WEST GREEN
WINCHFIELD
GARDEN FRONT

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THE "WALDEMAR" ROOM IN THE CASTLE OF FREDERICKSBORG.
(Illustrating the Article on "Copenhagen and its Surroundings.")



THE "ROSE" ROOM IN THE CASTLE OF FREDERICKSBORG.

(Illustrating the Article on "Copenhagen and its Surroundings.")

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Bricks and Mortar.

Aphorism for the Week.

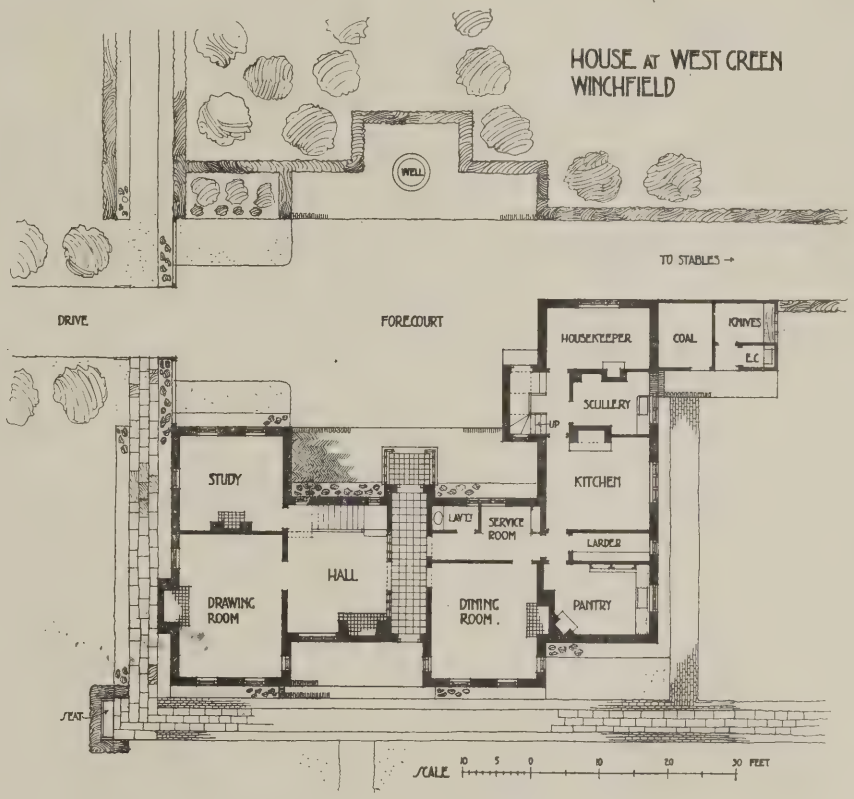
We prefer to adhere to the judgments pronounced by distinguished intellects rather than to use their method of examining facts, so as to reach our own conclusions.

VIOLLET-LE-DUC.

Our Plates. THE house at West Green, Winchfield, Hants, was built for Dr. Wills. The drawing which we publish was exhibited at this year's Royal Academy. The materials used were red bricks and tiles. Sash windows are used for the ground-floor sitting-rooms, to allow for sun shutters. The builders were Messrs. Mussellwhite & Sons, of Basingstoke, Hants, and the architect was Mr. Ernest Newton, of 4, Raymond Buildings, Gray's Inn, W.C.

British Copyright in Canada. A RECENT decision by three judges of the Supreme Court of Appeal at Ontario is to the surprising effect that the British copyright owner has no protection in Canada. The Berne Convention, to which Canada is a party, and the Act of 1866, which aimed at protecting British copyright in the colonies, seemed to have placed the matter on a satisfactory footing, and it is suggested that the judgment of the Court could only have been arrived at in consequence of the law being drafted in a faulty manner. In any case the decision is one that seriously threatens the interest of British copyright holders and places Canada in a position of unfair advantage, which we have no doubt that she does not desire; for, while she continues to receive copyright protection in Great Britain, she need give nothing in return. This is by no means in accordance with the true attitude of the Dominion, as we have lately had full reason to recognise, and the rectification of the matter might have been safely left to the good feeling of the Canadians themselves. Still, cases of hardship and injustice might arise in the meanwhile, and a Society has therefore been formed, under the presidency of Sir Edward Poynter, who has the support of several distinguished artists and others, for the purpose of protecting the copyright interests of artists and art publishers in the colonies, and of presenting a petition to the British Government to have the terms of the Berne Convention carried into effect. A deputation of this Society recently waited on Sir Wilfrid Laurier, who promised to give the matter his full and most sympathetic consideration, and it may, therefore, be taken for granted that the end which the Society has in view is practically attained, and that whatever legal bar there may be to a reciprocal copyright relationship between Great Britain and Canada will be promptly removed.

Portable Houses. ON the waste ground in Prince Consort Road, South Kensington, behind the Imperial Institute, a small portable and transformable house, constructed on the Silbiger system, has been erected. This system, it is claimed, offers distinct advantages for buildings in new countries where, as now often happens in South Africa, skilled labour is scarce and means of transport deficient. Buildings on this system are composed of panels, preferably of wood, all of the same size (about 3ft. wide by 8ft. or 10ft. high) and supported by uprights. An ingenious device is adopted to fasten the panels to the uprights; each of the latter has two panels clamped to it by the aid of two or three bolts with thumbscrews, and the various surfaces are so shaped at their meeting point that, when the screws are tightened, a firm strong joint is produced on much the same principle as a carpenter's dovetailed joint. The panels being uniform, any one may be used in any part of the house not only for outside walls but also for inside partitions; thus the trouble of numbering the different parts for erection is avoided, and in the event of some of them being lost or damaged in transit, the whole work of construction is not delayed, but the house can be erected, though perhaps short of one room or of a partition. Further, the doors and windows are of the same size as the panels, and are interchangeable with them; hence the owner of one of these houses, whenever he is inclined, can alter the position of his doors and windows, and, indeed, transmogrify the whole of his dwelling, inside and out, simply at the cost of slackening a few thumbscrews and moving the panels, &c., into their new positions. No foundations are required, but the wooden feet which carry the uprights and the timbers of the floor must naturally be placed on the level. The roof is borne by the uprights, to which it is securely fastened, and ingenious safeguards are provided against the entrance of rain or damp. Extremes of temperatures are guarded against, and the house made a real habitation, first, by using wood, a poor conductor of heat, as the constructive material, and, secondly, by making the walls double and the roof triple. Ventilation is also well provided for. The cost of such a house, containing four rooms, each 10ft. sq. and each fitted with a bed table, and two seats which can be folded up flat against the wall when not in use, is stated to be about £135, and the weight is 4 to 4½ tons, all in pieces no one of which exceeds 77lbs.



ERNEST NEWTON, ARCHITECT.

Coggeshall and the Teys. THE quarterly meeting and excursion of the Essex Archæological Society, took place recently. The remains of the famous Coggeshall Abbey were first inspected. The Cistercian monastery was built in the thirteenth century, of rubble with brick quoins, and has widely splayed windows, with moulded brick dressings. The remains are said to afford the earliest instance of mediæval brickwork in the country. The principal remaining fragment is part of an arcade running east and west. Only one pointed arch, however, remains intact. This is constructed of curious unmoulded bricks. Its pillar is also of brick. Portions of two massive walls likewise exist, and carved stones, including a late Norman capital, are scattered around. Paycock's House and the carved oakwork of other domestic buildings in Coggeshall, and the church of St. Peter-ad-Vincula were then visited. This church was erected during the fifteenth century, and is of flint and stone, consisting of a nave, with both aisles of five bays each and as many clearstory windows on each side, a chancel with aisles, and an embattled west tower with corner turret containing eight bells, dating from 1681. Each aisle has a door, four side windows and a west one. The south porch has a vaulted roof and chamber above. The bosses of the vaulting are of various designs, the centre one being a pelican in piety. The chancel contains three sedilia, three clearstory windows on each side, and a fine seven-light perpendicular east window. In the south chapel is a piscina and an altar tomb, and a stoup beside the door. There are modern side screens of oak richly carved, and several monuments and brasses. An excursion was subsequently made to Great Tey Church (St. Barnabas). This church has a massive central tower of pure Norman work and a chancel with aisles of the Decorated period, the nave having been destroyed previous to 1829. The tower is square, with corner turret stair and numerous small Norman windows, having sides of Roman tile. The east and west arches are Norman; the others, which lead into small transepts, are pointed. The south transept contains a piscina and a Decorated window, and in the north transept is a rather good three-light Decorated window. The font is Perpendicular, and there is an old carved lecturn and some ancient benches. Little Tey Church (St. James), a very small Norman building, was also inspected. This church is curious, inasmuch as the nave and chancel are under one roof. The north and south doors are Norman, the latter door having plain round mouldings, with its tympanum ornamented in a lozenge pattern. At Kelvedon, St. Mary's Church was visited. This building is chiefly of fourteenth-

century date, but it was considerably altered during the fifteenth and sixteenth centuries. The arches are of Early English, and they rest on columns which show late Norman workmanship. The easternmost arch rests on a beautiful corbel. The rood-stair remains, and there is a squint on each side of the chancel arch. The chancel contains an elegant crocketed piscina, and the nave roof is very fine and of ancient timbers, with supporting figures.

IN DANGER OF FIRE.

RISKS AT THE BRITISH MUSEUM.

MR. O. ELTZBACHER calls attention in the "Times" to the risk of fire at the British Museum. To the right of the entrance hall are situated three large adjoining rooms open to the public, the two rooms of the Grenville collection and the magnificent King's library. Adjoining these is a number of large rooms, such as the newspaper room, the catalogue room, the music room, and the large room and various minor ones, all of which rooms have not been constructed on "fireproof" principles. The flooring is wooden and seems everywhere hollow, thus increasing the danger in case of a sudden outbreak of fire; the numerous show-cases and the huge book presses with which the walls are lined, as well as the fittings, the door and window casings, and the doors themselves, are made of wood, and the ornamentation of the ceiling seems also to be largely constructed of inflammable material. Whilst the huge store of less valuable books is housed in the newer part of the library, which is entirely constructed of stone, iron and glass, and apparently quite up to date, the most precious part of the collection, embracing innumerable first editions, manuscripts and documents, is kept in those antiquated, largely wood-constructed rooms. Whereas the Egyptian and Greek sculptures of unburnable rock are exhibited in fireproof rooms and repose on stone floors, the most fragile and perhaps most valuable part of the treasures in the Museum is stored in highly inflammable rooms, in which the hollow flooring is even waxed, increasing thus the danger in the event of a fire. As the arrangements for fire prevention are so defective, it might be expected that the best measures for fire extinction should be found at the British Museum. However, no automatic sprinklers, which have proved their great value, are to be found in the most exposed part of the building, but only a few hydrants. In fact the precautions taken in that part of the Museum to prevent and to combat fire seem to be only those which were used in a former age. It might be said that the heating arrangements at the British Museum are such that an outbreak of fire from that source is unlikely. That may be or may not be, but it does not diminish the danger from lightning, arson, or from short circuit. Whether the latter contingency has been properly provided against seems also doubtful. Burglary is also not sufficiently guarded against.

Mr. Somers Clarke's Letter.

Mr. Somers Clarke, F.R.I.B.A., in reply to this letter says:

"The structure was built before fireproof construction had been as well studied as now. Those who designed and built it are not to blame that its roofs and floors are chiefly of wood, but the question may now be asked how far the structure might not gradually be changed in certain details, so that a very real danger may be greatly reduced. In the Egyptian Gallery, on the upper floor, considerable changes have recently been carried out. Windows have been bricked up and skylights have been pierced through the roofs. Here was an opportunity of making a change for the better, room by room. Has this been done? With the exception of the National Portrait Gallery, which, I believe, has its roofs as well as its floors of incombustible materials, there is probably not a museum or gallery in London which has not a combustible roof, and yet the danger arising from sparks and embers falling on timber and lead roofs is but too well known. At the British Museum there is an admirable system of hydrants by which, at a moment's notice, the outer surfaces of the roofs can be flushed.

"Fortunately there has not been occasion to bring them into use, but in the event of a serious fire in the houses surrounding the Museum on three sides we can look only with a little less dismay on the flooding of the roofs with water—much of which would certainly come through—than on the danger from the fire itself. The vast dome of the reading-room is but a combustible beehive of lath and plaster with iron ribs. We may ask what is being done (in the direction of rendering them incombustible) with the roofs in the new parts of the Victoria and Albert Museum. I understand that an efficient system of lightning conductors does not exist at the British Museum."

Mr. Hedges on Danger from Lightning.

Mr. Killingworth Hedges, M.I.C.E., hon. secretary of the Lightning Research Committee, continues the condemnation of the want of protective measures. "The sole protection against lightning is a few isolated conductors ignored, so I was informed, by the lightning when the roof was struck a few years ago; although the damage was slight owing to the metallic covering, from which the flash travelled by means of a rainwater pipe to earth, the risk was great. On the same date as your correspondent's letter you report the total destruction of the thirteenth-century tower of Swanscombe parish church by fire, caused by the lightning being diverted into the building; at the British Museum the electric-light mains would form an excellent path, should even a portion of a lightning stroke find an entrance, and a most disastrous fire might occur. In a paper read at the British Association meeting last year I drew attention to the unprotected condition of the Victoria and Albert Museum, South Kensington (struck by lightning in 1900, the damage, however, being confined to the destruction of an electric light cable), also to the National Gallery and the Tate Gallery; but the Office of Works appear to do nothing, and refused last year to spend the trifling amount required to protect the Chapter House, and include it in the modern system of conductors, which I designed for the protection of Westminster Abbey. Abroad, especially in Germany, great attention has been paid to the safeguarding of all public buildings against lightning stroke. The regulations vary with the different local authorities; in Frankfurt the municipality have special rules. The following is an extract:—'Houseowners must have their lightning conductors examined at least every two years, and must report alterations or repairs to a conductor; designs and specifications of proposed erections must be submitted to the local board, and for the accuracy of the same the houseowner is responsible.' The annual expense for upkeep in the case of a public building would be sufficiently provided by, say, a 1 per cent. rate on the sum spent for structural repairs, and this amount could be treated as an insurance. It appears anomalous that thousands should be spent in purchasing the property next to the National Gallery so as to minimise the danger of fire by isolation while the building itself has only the most elementary form of lightning conductor, and is just as liable to be struck as the Cavendish Laboratory, Cambridge, which recently escaped destruction by the mere chance that the gas had been turned off at the meter, so that there was no escape of gas from the pipe which was fused by the lightning as it side-flashed from the copper conductor on its way to earth."

Mr. Aston Webb, A.R.A., writes: "As architect to the new buildings at the Victoria and Albert Museum, I am in a position to reassure Mr. Somers Clarke, as I have been from the commencement instructed by the Office of Works to construct all the new roofs of these buildings with fire-resisting materials."

Engineering Notes.

Mr. Charles H. Beloe, civil engineer, of Liverpool, who carried out many important works in various parts of the country, died recently. He was regarded as an expert in drainage matters, and acted as engineer to the International Water and Sewage Purification Company of London. He was author of several standard treatises on the construction of reservoirs and town water-supplies.

A New Bridge at Barmouth.—The Cleveland Bridge and Engineering Co., Ltd., of Darlington, who are now engaged upon the erection of the new high-level bridge across the Tyne, have just completed the erection of a new railway bridge across the estuary of the Mawddach, at Barmouth, for the Cambrian Railways. The new bridge is supported by steel cylinders, which have been sunk into the granite below the bed of the river, a depth of no less than 100ft. below high-water mark. The new bridge has been built round the old one, and the work carried on in such a manner that the railway traffic has not been impeded during the two years it has been in progress.

A Scottish Mountain Railway.—The Leadhills and Wanlockhead Light Railway is nearing completion. Every traveller to Scotland by the West Coast route knows by sensation, not always pleasant, the "Beattock Bank" which the Caledonian train has to ascend and descend in crossing the watershed of the Clyde and Tweed from the lowlands of Dumfriesshire. From Beattock station to Elvanfoot, the junction for the light railway, is nearly 16 miles, and in that distance the train has climbed up some 700ft. to the summit (1,029ft.) and descended again to an altitude of 895ft. Step out of the main line carriage at Elvanfoot, and a tank engine, whose normal load in two small coaches, will lift you another 500ft. in half an hour, and deposit you on one of the most picturesque and health-giving spots in the British Isles. The total length of the completed line is $7\frac{1}{4}$ miles. The first $5\frac{3}{4}$ miles, connecting Elvanfoot and Leadhills, the Earl of Hopetoun's mining village, were opened last year. Since then the construction of the additional mile and a half of track necessary to join up Leadhills to Wanlockhead, the Duke of Buccleuch's mining village, has been steadily proceeded with. This section of the track presented no very great difficulties to the contractor. It is only a gently swelling ridge of breccia that separates the two villages, which lie on either side of the watershed. Leadhills stands at exactly 1,412ft. above the sea, Wanlockhead at exactly 1,417ft. Starting from the former the gradient is 1 in 40 to the summit, and the descent to the latter is made at the same angle, a slight modification of the vertical curve being obtained by a comparatively shallow cutting. In Elvan Valley the engineer has been compelled to hug one shoulder of its environing hill-walls and follow the right-hand curve described by the burn, or whatever natural agent preceded it. The very viaducts are half-circles; guard-rails are so usual that their occasional absence excites notice.

MEASURING-UP BUILDINGS.—II.

By ROBERT W. CARDEN, A.R.I.B.A.

(*Concluded from p. 15, No 393.*)

IN continuation of the notes upon measuring up old buildings for plotting to scale it is now necessary to add a few remarks upon measurements for sections and elevations. As a fundamental rule, it may be said that where elevations as well as plans are required the plans should be so thoroughly plotted down that no horizontal measurement need be added upon the sketch elevation. This is desirable, not only so as to ensure that every dimension is taken in its proper place, but also because the absence of figures which might have been taken elsewhere tends to produce a less complicated drawing of any elevation. Even with these precautions the simplest sketch of a front is bound to contain a confusion of lines: this will be clear from an inspection of Fig. 3.

Sections are generally best measured through a staircase, especially if the flights are regular and the landings come exactly in tiers. Space is not available for complete plans of all floors of a building to be given, but the staircase is given in its entirety, as it has apparently been altered or reconstructed since the houses were first built, and one staircase made—and very awkwardly—to serve two houses, except upon the top floor, where each has its own attic stairs. The height of each floor is noted upon the plans and the thickness of the floors, as these form useful data from which the rough elevation can be drawn with a nearer approximation to truth, and save much trouble later on. All items are totalled and checked immediately as explained in the previous article. All stairs should be carefully numbered and *intelligibly* entered, and it is better to always draw the right number on the sketch as well as figure the total in each flight, and it should be recorded whether these notes include for either or both landings, as a step too few or too many is a frequent cause of inaccuracy. In plotting which is intended to be incontrovertibly correct it becomes necessary on each plan to have two measurements taken, which being one over the other ought theoretically to be on different plans. This measurement is marked A A on ground plan, and is represented by a firm and a dotted line; the firm line fixes the start of the flight to basement below the winding stairs, and the dotted line indicates where the landing above begins, and consequently fixes the upper end of the flight to the first floor. This precaution may be omitted where the walls are known to continue unbroken to the top of the building, but it was required here, as the through dimensions were found to vary considerably. It may be noted incidentally that in the staircase from ground to first floor the first flight is 3ft. 1½in. wide, the second 3ft. 3in., the third 3ft. 10in. and the fourth 3ft. 3in.

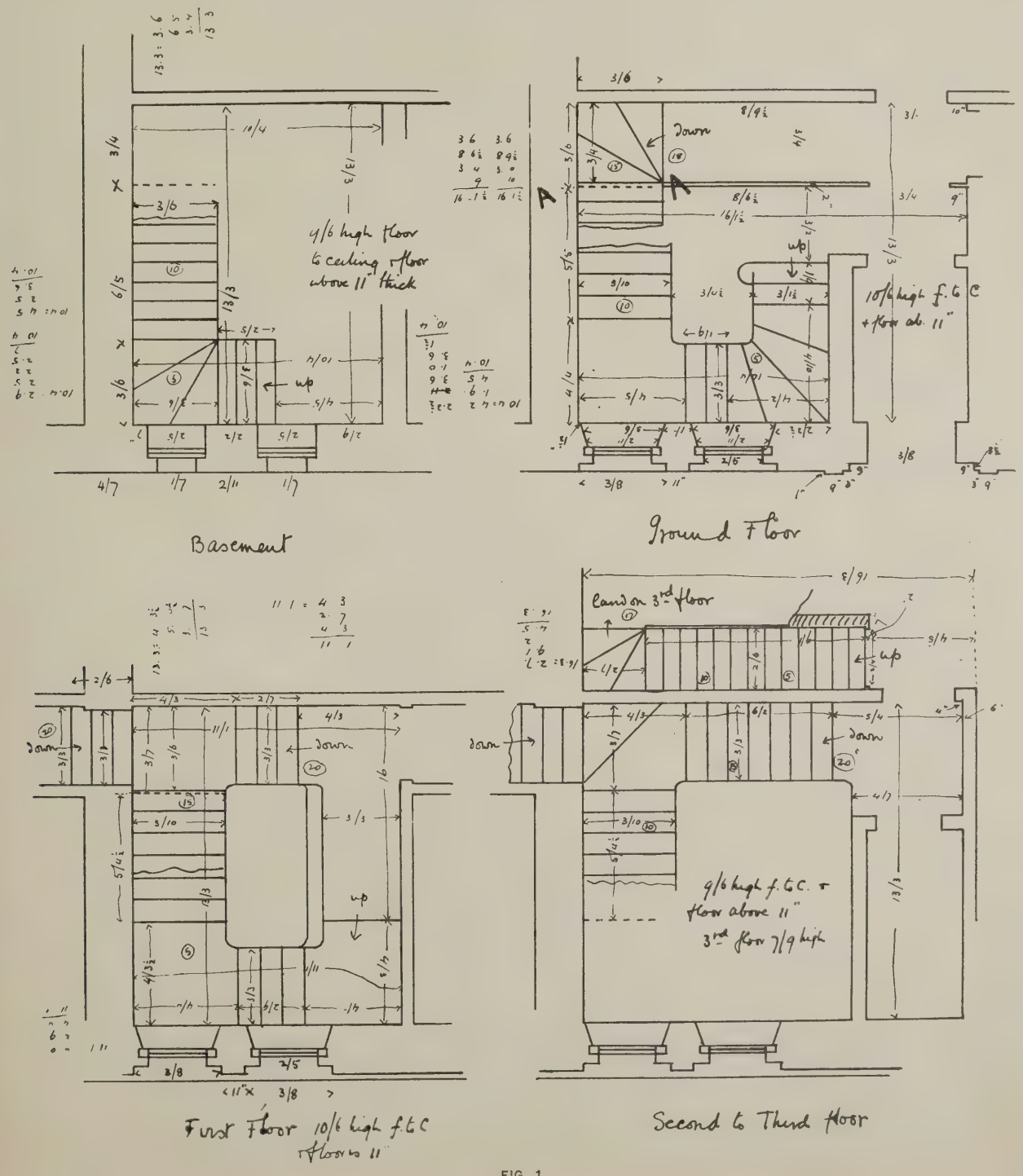


FIG 1.

Turning to the section (Fig. 2), only those portions which affect the stairs and the measurements of the front elevation have been figured, so as to avoid confusion. The stairs are numbered as a check, and all the numbers in each case are placed upon that portion of the drawing which represents the tread, as errors may otherwise occur; and where possible check heights are taken to any definite stair, so that by the application of these checks any mistake in the number of steps will be immediately revealed. The horizontal measurement of a sloping flight of stairs is not always easy to obtain, but here the difficulty did not arise, as no flight was more than 4ft. high, so that the dimensions could be taken with a tape and a plumb-line dropped to the riser of the lowest step. And here it may be added that measurements are taken from riser to riser and from string to string, *not* from nosing to nosing. Had this been an ornamental staircase, the ramps of the strings and the handrail and the balusters would have been required as well. Handrails should be measured vertically on the landings, and at right angles to the slope in flights, the dimension being taken to a definite point, say, the internal juncture of tread and riser. On the right-hand side of the section the main dimensions of the internal front are given, so as to form a check on the accuracy of the external ones. The internal height of the roof is also given, though it is unnecessary, as the height of the gable is obtained in this case by direct measurement from ladders. Frequently, however, as in a hipped all-round building, no such measurement is available, and internal scaling must be resorted to. It should always be remembered that a brick wall or chimney shaft is the best device for measuring not easily reached heights, where absolute accuracy is not required; for as each four courses of brickwork rise 1ft. it is only necessary to count the courses and divide by 4 for the nett height. The present building being covered with cement, direct measurement had to be adopted except in the chimney cap. Internal and external heights can be compared by measurements from window to window (vertically), but a true section through each sill must be first obtained so as to form a basis.

Although taking a little more time, it is well worth while in the outset to draw out the sketch elevation approximately to scale, obtaining the measurements from the plans and section (or the notes as to height inscribed on the stair portion of plan), as it is better to work upon terra-firma than to stand in mid air with one arm embracing a swaying ladder while trying to add details for which little or no room has been left on the paper; for when the whole elevation is already delineated spaces will be left where the details may be drawn out to a larger scale near their real positions, and the use of a number of unruly sheets of sketches avoided. A scale of 4ft. to 1in. is usually best for the main dimensions, heights of windows and similar items, but cornices and ornaments require to be taken to a larger scale, the exact amplitude of this latter depending entirely on the amount of detail required. In the example given the mouldings were all executed in cement, and not only was it not necessary to record them, but they were not worth the trouble, and they are consequently set down only with the projection from face of wall and the groups of mouldings noted. But for measuring old work the mouldings should be drawn out full size, all projections taken with rule and plumb-line, and the curved mouldings taken with callipers. There remains little more to be said, except that the external dimensions on Fig. 3 tally exactly with the figures on the section, and thus each proves the other to be correct. Most of the work in a simple building like the one illustrated can be measured from the various windows, but in larger edifices ladders and even scaffolding would be necessary, while, as in church steeples, there will be inaccessible points requiring the use of a clinometer or theodolite, which however is beyond the range of the present article. Wherever possible a photograph should be taken of the elevation to be measured, as, no matter how bad the result may be considered as a photograph, as a representation of the building it is unimpeachable, for, like the historic George Washington, the camera cannot tell a lie.

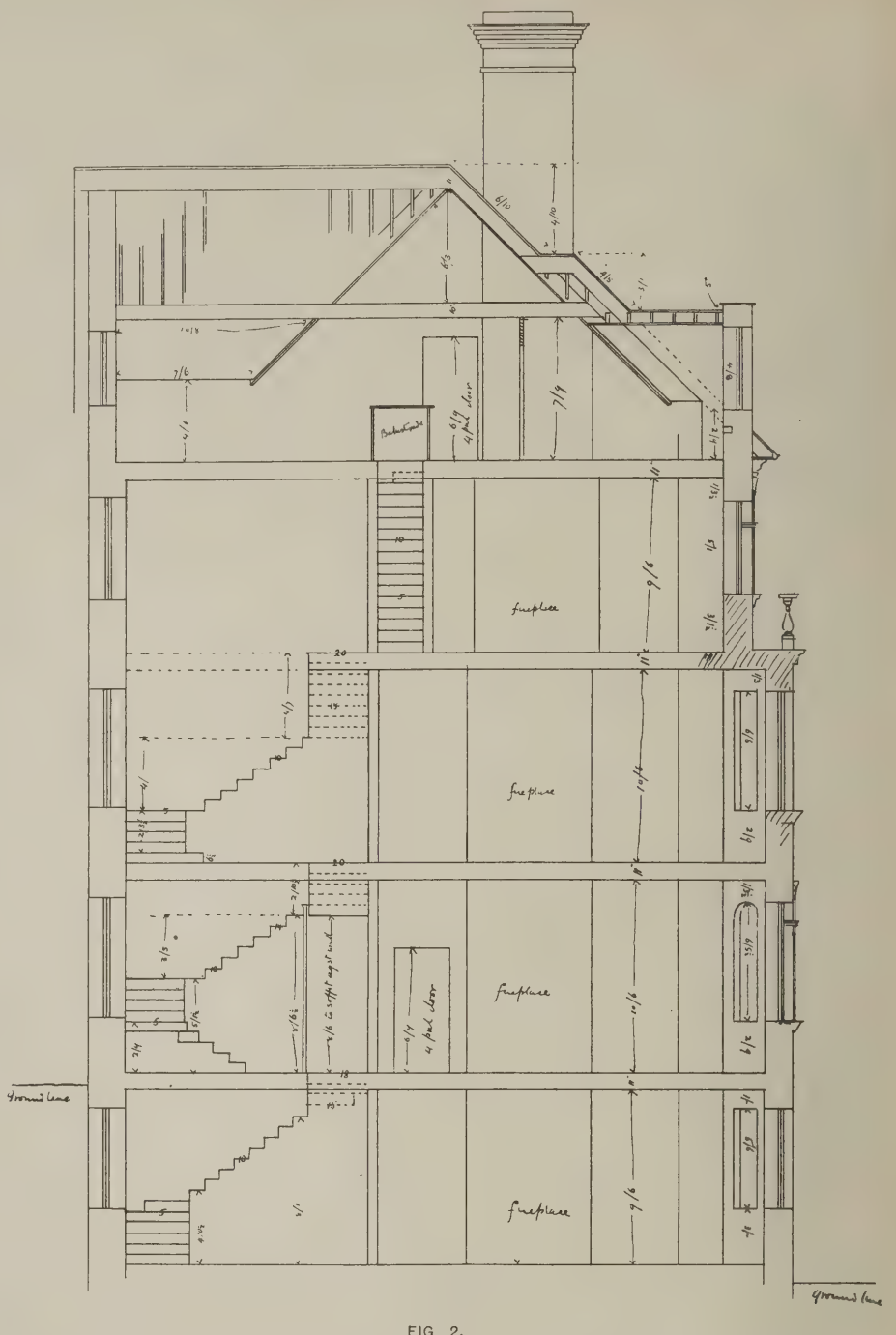


FIG 2.

A New Isolation Hospital at Repton is being erected in Sandy Pit Lane, Etwall, from plans and specifications prepared by Mr. A. Eaton, of St. James's Street, Derby. It will contain an administrative block, scarlet-fever block, observation block, laundry block, and engine house, with stabling, &c., and will afford accommodation for sixteen patients. The contract for building is £6,630. Messrs. Radford & Greaves, of Derby, are the contractors, and Mr. George Haywood, of Finden, is clerk of the works.

Builders' Notes.

Mr. Charles Chadwick, contractor, of Sheffield, died recently at the age of seventy-one years. He was born at Batley, near Dewsbury. He was apprenticed in the slating, plastering, painting and decorating trade, and when out of his time he entered into partnership with his uncle, the late Mr. Samuel Harrison. The partnership was dissolved in 1877, and since then the deceased carried on the business.

Plumbers' Apprenticeship.—At the half-yearly meeting of the Central Board of the National Association of Master Plumbers of Great Britain and Ireland, at Huddersfield, the president, Mr. W. L. Harrison, R.P., read a report of the work of the Educational Committee with reference to the form of indenture for apprentices, which had been drawn up in conjunction with the Worshipful Company of Plumbers. Hitherto there has been great laxity in the trade throughout the country respecting apprentices. The

form of indenture was adopted, providing for a seven years' apprenticeship, unless the lad has been previously pursuing his education to fit him for his trade at a technical school, on conditions varying according to localities.

Mr. John Fenton, builder, of Blackpool, died recently. He was born at Little Marton fifty-five years ago, and went to Blackpool at the age of twenty-six years. He first established and carried on for many years a prosperous grocery trade, but about nine years ago he entered into the brick-making and building business. In this line he met with marked success, the firm of J. & R. Fenton being well known throughout the town.

Portland-cement Grouting: "Killing" and "Aeration." — Sir Edwin Durning-Lawrence recently wrote to the "Times" with reference to the use of Portland-cement grouting for the fallen Campanile of St. Mark's, Venice (see p. 424 of our issue for August 13th). Mr. Fred A. White, chairman of the Associated Portland Cement Manufacturers (1900) Ltd., now writes calling attention to Sir Edwin's inadvertent misuse of the term "killed." "In saying that Portland cement should be 'killed' he advocates what he would be the first to condemn. This term is used to express the action of over-watering cement in gauging it. The effect of mixing with the cement powder more water than it can assimilate for the purpose of crystallization is to interrupt and even to counteract the setting process, and thus to prevent the attainment of eventual hardness. Manufacturers look upon this as a danger to be guarded against in the testing of cement. Material of the finest quality may be made to appear worthless if the making of briquettes or pats is in the hands of an ignorant, inexperienced or careless tester. The precaution Sir Edwin rightly urges, and correctly describes, is called "aëration."

Floor Tiles in Paraguay.- According to a report by the French Chargé d'Affaires at Asuncion, builders in Paraguay have recently taken to replacing the defective floor tiles made in the country, and which, until then, were alone used for flooring purposes in Asuncion, by tiles of foreign origin. Ceramic tiles (in compressed cement, earthenware or baked clays) would find, it is said, a certain opening in Paraguay, as the climate of the country necessitates the use of tiles in preference to woodflooring, and the consumption of this article is increasing every day.

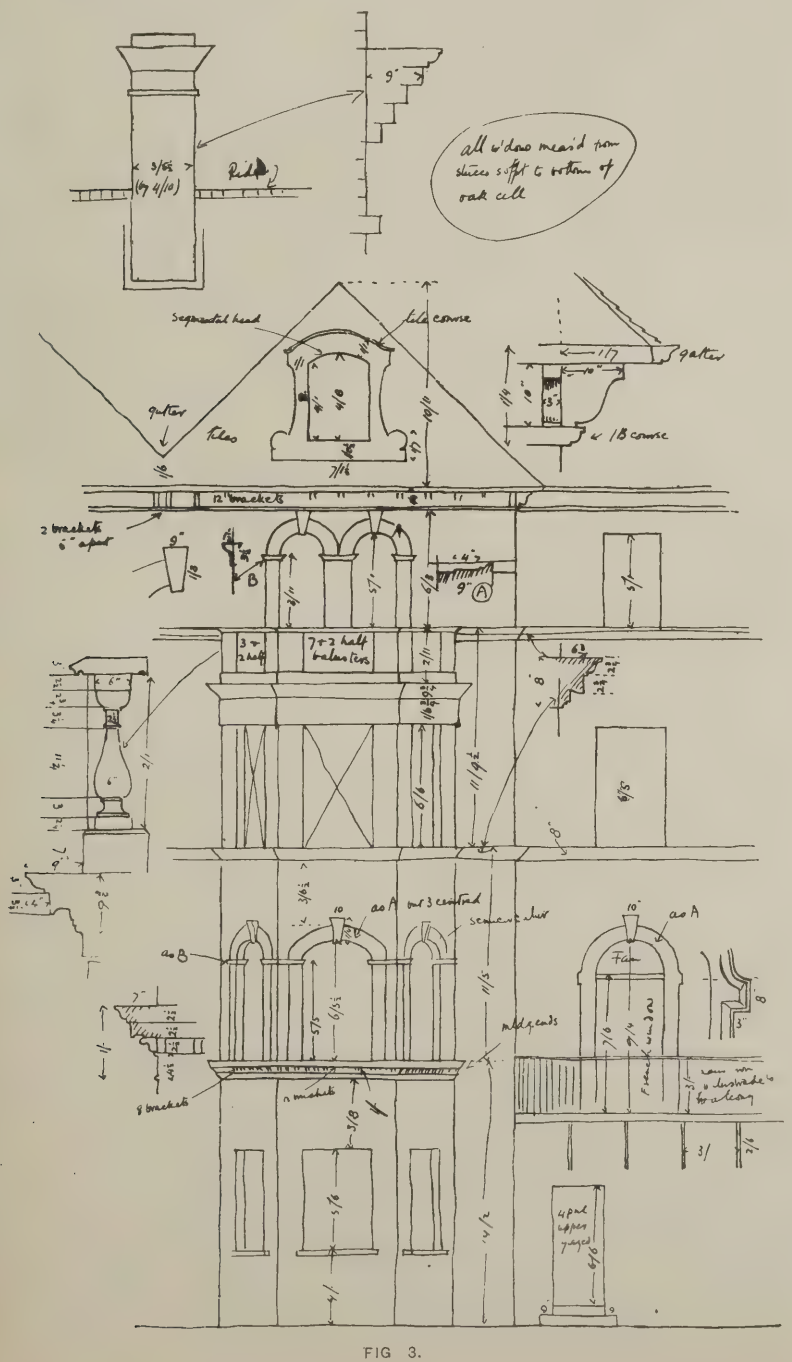


FIG 3.

New Patents.

These patents are open to opposition until September 30th.

1901.—Pipe Joints.—15,284. C. H. W. Biggs, Glebe Lodge, Champion Hill, S.E. The ridges on each pipe which serve to retain the liquid cement are formed spirally, the object being to secure a greater resistance to rotary and axial movement.

Toy Building Blocks.—16,200. O. Nentwig, Neustadt, Upper Silesia, Germany. The bricks or blocks, instead of being loose, are put together with **T**- and **L**-irons which fit into grooves in the blocks.

Ventilating Apparatus.—17,467. J. Keith, 27, Farringdon Avenue, and W. W. Wardle, 32, Somerfield Road, Finsbury Park; both of London. This invention consists of a fan or blower combined with a slotted rocking chamber analogous in action to a punkah. By these means the indrawn air is widely diffused into the apartment.

Brackets for Lavatory Basins.—18,453. G. D. Innes, Bennett's Ironfoundry Co., Ltd., Hyde Road, Ardwick, Manchester. To enable it to be adapted to basins of various shapes, the bracket consists of side pieces hinged to base pieces in combination with hinged corner pieces for supporting the front of the stand.

Plumbers' Traps.—19,183. W. G. Rennie, 6, Gillespie Street, Edinburgh. A lip is made on the bend of the trap with its bore tapered outwardly, so that the threaded metal socket which is afterwards inserted is drawn up very tightly when the cover or plug is screwed in: thus producing a thoroughly water-tight joint.

Distemper.—22,081. R. Cussen, 58, Lough Road, Cork. Two gallons of water are added to 2lbs. of glue, and boiled. When cool the following ingredients are added separately:—Paper varnish, 2 pints; boiled linseed oil, 4 pints; turpentine, 2 pints; terebine, 1 pint. The mixture is then boiled and afterwards strained. It is claimed that this distemper will not emit any offensive smell, no matter how long it is kept.

The following specifications were published on Thursday last, and are open to opposition until October 7th next. The name in italics is that of communicator of invention. A summary of the more important of them will be given next week.

1901.—8,706, Macculloch & Dickinson, cash registering tills. 15,554, Harrisson, artificial stone. 15,621, Thame, waterproof composition for floor coverings, wall decorations, &c. 16,600, Malkin, Binns & Foster, guards for wood-planing machines. 16,702, Smith, acetylene-gas generators. 17,540, Dyson, red aggregates for the manufacture of artificial stones, pavings, &c. 17,915, Adams, gulleys. 17,917, Adams, drainage channels. 18,240, Ritter & Rowland, lock-hinges. 18,366, Newton, apparatus for sewage treatment. 18,405, Peake, sewage purification. 18,557, Barnes, clamping devices. 19,273, Whitelaw, guards for circular saws. 19,295, Mousley, footballs. 19,296, Bond & Strickland, sliding windows, shutters, &c. 19,352, Borrington, water-closets. 19,536, Harper, tap for water-supply pipes. 19,666, Zastrow, drying-rooms and trucks for bricks. 19,803, Chance, glass-facing tiles, slabs, &c. 20,529, Smith, connecting-piece for drainage and other pipes. 23,603, Scholefield, glazing roofs and structures. 24,233, Conner, fastening for windows, doors, &c.

1902.—3,802, Baxter, apparatus for screening stone, &c. 4,013, Bousfield (*Fresh Air and Safety Sash Fastener Co., Ltd.*), sash fasteners. 5,874, Morton, apparatus for

drying lumber. 8,552 FAULKNER & FAULKNER, radiators, towel rails, &c. 9,920, ADAMS, filters for sewage. 10,571, ROACH, automatic distributing apparatus for sewage. 11,978, CHAQUETTE, making trenches for laying sewer pipes. 13,099, SMITH & MOLDEN, flushing cisterns. 13,118, GRÜNHÜT, dyeing timber. 13,331, GOUCHER, sash-locks. 14,396, JAUBERT, brick. 14,403, BURN & BURN, water waste-preventers for flushing purposes.

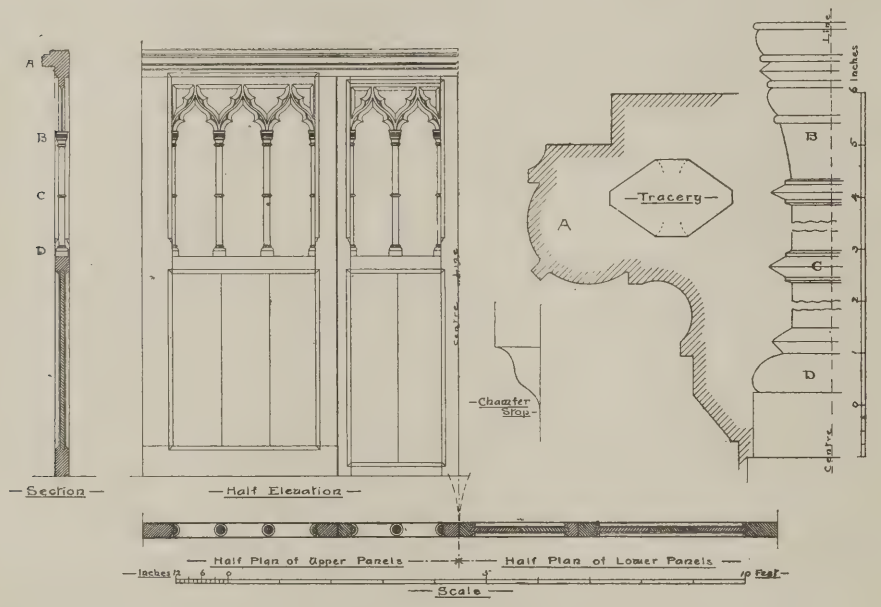
Masters and Men.

Mines and Quarries.—The general report and statistics relating to persons employed and accidents at mines and quarries in the United Kingdom, and to the enforcement of the Mines and Quarries Acts, has been issued by the Home Office as a Blue-book. The total number of persons employed at mines and quarries in the United Kingdom and the Isle of Man during 1901 was 933,366, of whom 839,178 were employed in or about mines and 94,188 in or about quarries. Of the 839,178 persons employed at mines 666,626 worked underground and 172,552 above ground; of the last-mentioned 5,588 were women. Compared with the preceding year, there is an increase of 22,384 males working underground, and an increase of 1,912 males and of 365 females working above ground, making a total increase of 24,661 persons. The increase occurred entirely at coal mines. Of the 94,188 persons employed in and about quarries, 59,968, including four females, worked inside the actual pits, holes or excavations, while 34,220, including 39 females, were employed at factories and workshops outside. Compared with 1900 the number of persons employed inside quarries shows a decrease of 673, and the number outside quarries an increase of 956 persons. In 1901 1,075 separate fatal accidents occurred in and about the mines and quarries of the United Kingdom, causing the loss of 1,229 lives. Of these 98 were lost at quarries.

The Ruins in Mashonaland.—Further discoveries have been made in the great ruins at Zimbabwe. Two ancient ascents leading up to the citadel have been found, and the citadel itself has been cleared. An old stairway was also discovered, and various objects, including gold bangles and pieces of pottery, were found. One of the passages, which was penetrated for the first time, is 994ft. in length.

SWANSCOMBE CHURCH.

ON page 13 of last week's issue we gave particulars of the disastrous fire that occurred at Swanscombe Parish Church caused by its being struck by lightning. We give on this page a measured drawing of the screen under the tower arch which was destroyed. This is said to have been part of a rood screen, and there was certainly one, as the wall of the south aisle also shows the steps leading to a rood loft. The rare Norman font, formed out of a block of solid chalk and carved with the emblems of the four Evangelists, has been shattered. But this, it is hoped, may be fitted together again, as the fragments have been carefully preserved, and the most valuable piece of carving is still intact. The work of restoration has been entrusted to the architect who restored the church in 1874, Mr. Jabez Bignell, a pupil of Sir Gilbert Scott, who spoke of the restoration as "a most careful and successful piece of work." According to his report sent in last week, the chief work to be done is a new nave roof, most of the north and south aisle roofs, new wood spire and floor to the tower, also the reseating of the nave and aisles, with repairs to the stonework and fabric generally, and possibly the rebuilding of the upper portion of the tower, in addition to a set of new bells. The latter is perhaps the saddest loss of all to the neighbourhood, The six bells of Swanscombe were famous throughout Kent, three of which were cast in 1751. The cost of restoring the building to its original appearance, including new bells, he estimates at about £4,000. The church was insured in the Ecclesiastical Insurance Office for £2,550, including chancel and organ, which have suffered to a comparatively slight extent. The lightning-conductor had been examined, as it happened, a few days before the disaster in the course of some repairs by the churchwardens, and appeared to be free from any defect. But the lightning appears to have struck the wooden-shingled spire, and the whole structure was observed to be blazing furiously a few moments afterwards. Every effort was made by the local fire brigade, who were on the spot almost immediately. But the men were handicapped by the low pressure of the water obtained from the Kent Waterworks hydrant, which made it impossible to send a jet as high as to reach the top of the tower. The church plate, including a chalice of 1620, is safe. The rector makes an appeal for subscriptions for the restoration.



TOWER SCREEN, SWANSCOMBE CHURCH, KENT. MEASURED AND DRAWN BY FRANK J. WALLER.

Keystones.

Lancaster Parish Church.—The Vicar of Lancaster, Rev. Canon Bonsey, in reference to the memorial chapel to fallen soldiers of the King's Own Royal Lancaster Regiment, proposed to be erected in the Parish Church, says that in the opinion of the eminent architects, Messrs. Austin & Paley, the chapel would not have the effect of destroying the proportions of the church, but that an additional north aisle in the nave, with arches where the north wall now stands, would greatly improve the appearance of the church and add to its dignity. A memorial chapel at Bowerham is out of the question on account of the cost.

A Botticelli at Berne.—The Berne Museum has just come into possession of an important picture, left to it in 1881 by the painter Von Stürler, who died at Versailles. It professes to be the "original" of the famous "Magnificat" by Botticelli, one of the glories of the Uffizi. It is somewhat smaller than that picture, and has at one time been cut in two and rejoined. Von Stürler acquired it at Florence many years ago. The Berne authorities claim that this new picture is by Botticelli himself, and an earlier version of the Uffizi *tondo*; but as to this not very probable hypothesis it is safer to reserve one's opinion till the real authorities have spoken.

The Parish Church of Aldenham was struck by lightning last week. The spire was practically destroyed. The clock wire appears to have acted as a conductor, and a ball of fire which shattered the case around the wire produced three terrific explosions. Three persons standing under the belfry were all knocked down and rendered unconscious for some minutes, but beyond a temporary paralysis of the limbs they suffered no harm. The lightning set fire to some cleaning rags, and the church was filled with smoke, but the flames were soon extinguished. Two servants at the vicarage were also knocked down by the force of the explosion. Tiles from the spire were picked up 60yds. away.

The Theatre Royal, Exeter, which has been closed for several weeks, was reopened recently after undergoing considerable improvements in the interior. The frontage of the circle has been brought about 12ft. 9in. nearer the stage. The whole flooring has been raised 3ft., and the old wooden partition at the rear supplanted by a permanent stone corridor, on the top of which rest nine private boxes. The flooring immediately behind the orchestra has been raised, and the partition which formerly divided the pit stalls and orchestra stalls has been moved back to the old boundary of the pit. Messrs. Dart & Pollard are the contractors for the alterations, Mr. Charles Cole, of Exeter, being the superintendent architect. The decorations have been done by Mr. J. Algar, of Exeter, under the superintendence of Mr. Montgomerie Neilson.

A New Organ at Tawstock Church has been erected at a cost of £480 at the west end of the church, and owing to the necessity for dividing it, in order not to obstruct the beautiful stained-glass window representing "The Ascension," the instrument had to be built differently to most organs. The tubular pneumatic system with compressed air, from the same bellows as supplies the sounding portion of the instrument, as the motive power, has been adopted. Messrs. F. H. Browne & Sons, Ltd., of Deal, Kent, are the builders. The oak casing for the organ is not yet completed, but is to be in position at the end of this month. Messrs. Shapland & Petter, of Barnstaple, have this portion of the work in hand. The old oak seats, which had to be removed to make room for the organ, have been placed in the north transept of the church.

A Fire Station and Workmen's Dwellings at Bangor.—The Local Government Board have sanctioned the borrowing of £405 for providing a fire station and £7,445 for purchase of workmen's dwellings.

An Exhibition at Portland (Oregon) will be held in 1905 to commemorate the centennial of the expedition of Lewis and Clark. It will be on a large scale, and a guarantee company has been incorporated, with a capital of £100,000, under the name of "the Lewis and Clark Centennial and Pacific Exposition." Subventions are expected from the State of Oregon, the neighbouring States and the Federal Government.

A New Constitutional Club at Hinckley has been erected from plans by Mr. W. T. Orton, of Hinckley and Birmingham. The club is on the Station Road, and is built of brick with Hollington-stone dressings. The main entrance is from Station Road, and on the ground floor are the reading-room and the committee and two smaller rooms. The remainder of the ground floor is occupied by three lock-up shops. On the first floor are the billiard-room, a smoking-room with refreshment bar, and two apartments to be used as card-rooms. In the rear are the manager's quarters.

A Catholic Day School, at Whitwick, is being erected on Parson Wood Hill, to accommodate 500 children. The cost is estimated at about £5,000. The buildings are designed on the central hall plan, and consist of a hall 71ft. by 33ft., with nine classrooms, four on each side of the hall and one at the end. All the classrooms are lighted from windows to the left-hand of the scholars, and separated from the central hall by movable glazed screens, all being under the direct superveillance of the headmaster or mistress. Separate entrances and cloak-rooms are provided for boys, girls and infants, and private rooms and store closets are set apart for the head teachers. The walls, both internally and externally, will be faced with red bricks of local manufacture. The dressings externally are of red terra-cotta and Ancaster stone. All roofs will be covered with green slates, and all ceilings plastered. The whole of the work is being carried out by Mr. Walter Moss, builder, of Coalville, Messrs. McCarthy & Co., of Coalville, are the architects.

The New Church of Ethelwold's, Shotton-in-Hawarden, has just been consecrated. The erection of the church was begun 3½ years ago. The cost has been about £7,000. It is built of Staffordshire sandstone, with a clearstory, western gallery, and an apse capable of holding 600 persons. There are three sets of windows in the east end. In the gallery are three stained windows. The gallery is approached by a flight of steps from the porch, this being a new feature in church design. The floors of nave, aisles and choir are laid with wood blocks, the chancel with small black and dove-coloured tiles. The step and floor in the sacrarium under the altar table is in marble. All the painted glass is by Mr. Edward Frampton, of London. The pulpit and font are carried out in stone, the former having open arcading and carved pateræ, the latter being in Helsby stone. The nave and aisles are seated throughout with chairs, the chancel having oak choir fronts and prayer desks. The altar table is of oak, and has been carved by Mr. Frank Hurlbutt. The reredos above is of wood, carved, painted and decorated. The church is lighted throughout by suspended oil lamps by Messrs. Singers, of Frome. Messrs. J. King & Co., Liverpool, are responsible for the heating. The whole of the structural work has been carried out by Messrs. J. Ward & Son, of Uttoxeter, from the design of Messrs. Douglas & Minshull, of Chester.

A Carnegie Library Competition.—A limited competition for the Carnegie Library at Coatbridge has just been decided. Mr. T. L. Watson, architect, Glasgow, was selected as assessor, and advised the committee and the town council throughout. On his recommendation the plans of Mr. Alexander Cullen, Motherwell, were adopted from among ten sets submitted and premiums were awarded to Messrs. A. N. Paterson, Glasgow; George Arthur & Sons, Airdrie; and Alexander MacGibbon, Glasgow. One competitor was disqualified, his design being much in excess of the limit of £10,000.

A New Branch Co-operative Stores at Rosehill, Willington Quay has been erected for the Willington Quay and Howdon Industrial Society, Ltd. The building forms a section of a scheme which, when completed, will cover an area of 126ft. by 70ft., and consists of grocery and provision, green grocery and butchering departments. Externally, the building is constructed with Accrington red-pressed bricks, relieved with moulded stone cornices, architraves and other dressings. Messrs. W. A. Fishburn & Co. were the contractors, Mr. J. W. Hanson was the architect, and Mr. J. Thompson the clerk of works. The cost of the building is £2,464 10s.

Mr. George Truefitt architect, of Manchester, died recently at the age of seventy-eight years. He designed banks at Altrincham, Blackburn and Manchester. He built a little church at Davyhulme, near Flixton. Chorlton-cum-Hardy Church, a turret, some tracery in the windows, and a lych-gate are from his designs. Besides the banks, he carried out much work in Aberdeenshire for the late Sir W. Cunliffe Brooks, and also for the baronet's son-in-law, the Marquess of Huntly. A very simple little church of his was built for the Irvingites near the Angel at Islington. He had a large practice in houses great and small, in churches with their accessories, in banks, and other buildings.

St. John the Baptist's, Little Marlow, is now being restored. The edifice, which was originally erected in the Norman and Early English styles of architecture in the year 1190, was last restored in 1866, since which time the stone battlements and buttresses of the old tower—the finest example of Norman work existing in Buckinghamshire—have given evidence of the want of urgent renewal; in fact, being pieced with friable and broken stucco, it has not only become unsightly, but, by the breaking away of fragments, smaller or larger, perilous to passers-by. The repair of the fifteenth-century window mullions, sills and the roof are also receiving attention. In addition important improvements connected with the chancel, the Ledewich chantry and the organ have been undertaken.

The Restoration of Diseworth Parish Church has been completed after being in hand for about eight years. The chancel has been restored and a new east window and two south windows placed therein. The old plaster has been removed from the walls, a new tiled floor laid down, oak pews installed, and the whole of this part of the building fitted with new lamps. The south aisle was restored as a memorial to the late vicar. Considerable attention has been given to the restoration of the tower; the walls of the nave have also necessitated a large expense on their renovation; the pews throughout have been cleaned and stained, and the whole building fitted with large standard lamps. The restoration of the lectern, one pillar, and the re-tiling of the vestry floor was the work of the late vicar's own hands. Two stained glass windows have been placed in the west front of the church and a new fifth bell hung in the tower. A set of new gates adorns the entrance to the church.

Coming Events.

Saturday, August 30.
ARCHITECTURAL ASSOCIATION.—Fifth Summer Visit to Heathfield Park.
NORTHERN ARCHITECTURAL ASSOCIATION.—Students' Sketching Club Excursion.
TRADE UNION CONGRESS.—Conference on Housing and Cheap Transit, Toynbee Hall, 4.30 p.m.

Wednesday, Sept. 3.
IRON AND STEEL INSTITUTE.—Meeting at Düsseldorf. First Day. Reception in Tonhalle. Visits to Exhibition and Conversazione.

Thursday Sept. 4.
IRON AND STEEL INSTITUTE.—Meeting at Düsseldorf. Second Day. General Meeting at 10 a.m. in Tonhalle to hear Papers read. Visit to Exhibition at 3 p.m., and Banquet at 7 p.m.

Friday Sept. 5.
IRON AND STEEL INSTITUTE.—Third Day. Visits to Works.

Saturday Sept. 6.
IRON AND STEEL INSTITUTE.—Fourth Day. Visits.

Current Market Prices.

FORAGE.

		£ s. d.	£ s. d.
Beans	per qr.	1 15 0	2 0 0
Clover, best	per load	4 15 0	5 10 0
Hay, best	do.	5 5 0	5 12 6
Sainfoin mixture	do.	4 10 0	5 5 0
Straw	do.	1 16 0	2 8 0

OILS AND PAINTS.

Castor Oil, French	per cwt.	1 5 9	—
Colza Oil, English	do.	1 6 6	—
Copperas	per ton	2 0 0	—
Lard Oil	per cwt.	2 13 0	2 14 0
Lead, white, ground, carbonate	do.	1 4 10	—
Do. red	do.	1 0 4½	—
Linseed Oil, barrels	do.	1 9 6	—
Petroleum, American	per gal.	0 0 5⅜	0 0 5⅞
Do. Russian	do.	0 0 5¼	6 0 5⅜
Pitch	per barrel	0 7 0	
Shellac, orange	per cwt.	5 4 0	—
Soda, crystals	per ton	3 2 6	3 5 0
Tallow, Home Melt	per cwt.	1 10 0	1 11 6
Tar, Stockholm	per barrel	1 1 6	—
Turpentine	per cwt.	1 13 1⅛	—

METALS.

Copper, sheet, strong	per ton	69 0 0	—
Iron, Staffs., bar	do.	6 10 0	8 10 0
Do. Galvanised Corrugated sheet	do.	11 7 6	11 12 6
Lead, pig, Soft Foreign	do.	11 3 9	—
Do. do. English common brands	do.	11 7 6	—
Do. sheet, English 3lb. per sq. ft. and upwards	do.	13 5 0	
Do. pipe	do.	13 15 0	—
Nails, cut clasp, 3in. to 6in.	do.	9 5 0	—
Do. floor brads	do.	9 0 0	—
Steel, Staffs., Girders and Angles	do.	5 15 0	6 5 0
Do. do. Mild bars	do.	6 10 0	7 0 0
Tin, Foreign	do.	127 10 0	128 0 0
Do. English ingots	do.	127 0 0	127 10 0
Zinc, sheets, Silesian	do.	24 0 0	—
Do. do. Vieille Montaigne	do.	24 0 0	—
Do. Spelter	do.	18 12 6	18 18 9

TIMBER.

SOFT WOODS.

Fir, Dantzic and Memel	per load	3 0 0	4 10 0
Pine, Quebec, Yellow	per load	4 7 6	6 0 0
Do. Pitch	do.	2 14 0	3 1 0
Laths, log, Dantzic	per fath.	4 10 0	5 10 0
Do. Petersburg	per bundle	0 0 8	—
Deals, Archangel 2nd & 1st	per P.Std.	16 15 0	24 15 0
Do. do. 4th & 3rd	do.	8 10 0	15 15 0
Do. do. unsorted	do.	5 12 6	6 10 0
Do. Riga	do.	6 15 0	12 10 0
Do. Petersburg 1st Yellow	do.	16 5 0	—
Do. do. 2nd „	do.	9 0 0	12 10 0
Do. do. White	do.	7 5 0	12 10 0
Do. Swedish	do.	8 15 0	16 15 0
Do. White Sea	do.	13 5 0	17 5 0
Do. Quebec Pine, 1st	do.	18 10 0	22 5 0
Do. do. 2nd	do.	22 5 0	—
Do. do. 3rd &c.	do.	9 15 0	—
Do. Canadian Spruce 1st	do.	7 10 0	12 10 0
Do. do. 3rd & 2nd	do.	7 0 0	9 10 0
Do. New Brunswick	do.	7 5 0	8 0 0
Battens, all kinds	do.	7 12 6	10 5 0
Flooring Boards 1in. prepared, 1st	per square	0 8 3	0 12 6
Do. 2nd	do	0 10 6	—
Do. 3rd &c.	do.	0 6 3	0 10 0

HARD WOODS.

Ash, Quebec	per load	3 17 6	4 10 0
Birch, Quebec	do.	3 12 6	3 17 6
Box, Turkey	per ton	7 0 0	15 0 0
Cedar, 1in., Cuba	per ft. sup.	0 0 4 5/12	—
Do. Honduras	do.	0 0 1 1/2	—
Do. Tobasco	do.	0 0 5 1/2	—
Elm, Quebec	per load	0 12 6	5 10 0
Mahogany, Average Price for Cargo, Honduras	per ft. sup.	0 0 3½	0 0 3¾
Do. African	do.	0 0 4	—
Do. St. Domingo	do.	0 0 5 17/32	—
Do. Tobasco	do.	0 0 3 13/32	—
Do. Cuba	do.	0 0 5 9/16	—
Oak, Dantzic and Memel	per load	3 15 0	5 7 6
Do. Quebec	do.	4 12 6	7 15 0
Teak, Rangoon, planks	do.	16 0 0	17 10 0
Wainscot, Riga (Baulk)	do.	3 15 0	5 15 0
Walnut, Odessa Crown	do.	3 15 0	5 15 0
Do. American	per ft. cube	0 3 1	—

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.		WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDERS MAY BE OBTAINED.
		BUILDING:		
Aug.	28	Santiago de Galicia, Spain—Building for Veterinary School	Ministry of Public Instruction ..	Office of Ministry of Public Instruction, Madrid.
,,	28	Gloucester—Nurses' Home	Committee	Vale & Kingsford, George Street, Gloucester.
,,	28	Bristol—Foundations, Subways, &c.	Corporation	H. Faraday Proctor, City Electrical Engineer, Temple Back, Bristol
,,	28	Haslemere, Surrey—Church		Spooner & Cobbold, 17 Red Lion Square, Holborn, E.C.
,,	28	Bootle—Laying Foundations, to datum level of School Premises.	School Board	T. Cox, 11 Dale Street, Liverpool.
,,	28	Faweather, near Baildon, Yorks—Farm Buildings		J. Robertshaw & Son, 55 Tyrrel Street, Bradford.
,,	28	Forton, Garstang—Alterations, &c., to Chapel		J. Wildman, School House, Forton, Garstang.
,,	29	Bradford—Engine House, &c.	D. Illingworth & Sons	J. Ledingham, Architect, District Bank Chambers, Bradford.
,,	29	Denny, Scotland—Additions	Co-operative Society	J. Strang, Architect, Vicar Street, Falkirk.
,,	29	Port Dinorwic, Wales—Alterations..		E. Evans, 8 Castle Street, Carnarvon.
,,	29	Crownhill, near Plymouth—Police Station	Devon County Council	E. H. Harbottle, County Surveyor, Queen Street, Exeter.
,,	29	Dublin—Map Stores at Mountjoy Barracks	Board of Public Works	H. Williams, Secretary, Office of Public Works, Dublin.
,,	30	Carlisle—Alterations and Additions to House	Corporation	H. C. Marks, A.M.I.C.E., City Engineer, 36 Fisher Street, Carlisle
,,	30	Newcastle-on-Tyne—Offices, &c.	Consett Iron Co., Ltd.	C. E. Oliver, Company's Architect, Consett.
,,	30	Wesham, Lancashire—Workhouse and Offices	Fylde Union Guardians	Haywood & Harrison, Architects, Accrington.
,,	30	Blackpool—Additions to Destructor Works, Foundations for Chimney, and Chimney (three contracts).	Cleansing Committee	J. S. Brodie, Borough Engineer, Town Hall, Blackpool.
,,	30	Bo'ness, Scotland—Hospital	Town Council	J. P. Lawrie, Burgh Surveyor, Bo'ness.
,,	30	Bryn, near Port Talbot—House	Miss Talbot	F. B. Smith, Architect and Surveyor, Port Talbot.
,,	30	Halifax—House		M. Hall, 29 Northgate, Halifax.
,,	30	Penrhiwceiber, Wales—Chapel		W. Hicks, Bronheulog Villas, Penrhiwceiber Road, Penrhiwceiber
,,	30	Troedyrhiw, Wales—Rebuilding	D. Morgan & Co.	T. Roderick, Architect, Glebeland, Merthyr Tydfil.
,,	30	Penarth—Walls, Gates and Fencing	Urban District Council	E. J. Jones, Caledonian Chambers, St. Mary Street, Cardiff.
,,	31	Woodham—Inn	Sir William Eden, Bart.	F. H. Livesay, Architect and Surveyor, Bishop Auckland.
Sept.	1	Abergavenny—Additions		B. J. Francis, Architect, Abergavenny.
,,	1	Lancaster—Shed and Wall	Streets Committee..	Borough Surveyor, Lancaster.
,,	1	Nottingham—Refuse Destructor	City Council	A. Brown, City Engineer, Guildhall, Nottingham.
,,	1	Yarm—School Extension	School Board	E. G. Fletcher, Architect, Stockton-on-Tees.
,,	1	Walsall Wood—School	Norton-under-Cannock School Board.	T. H. Fleeming, Architect, Darlington Street, Wolverhampton.
,,	2	Swindon—Covering-in Market Site	Corporation	H. J. Hamp, Borough Surveyor, Town Hall, Swindon.
,,	2	Brighton—Alterations to Electricity Works	Corporation	F. J. Tillstone, Town Clerk, Town Hall, Brighton.
,,	3	Parkeston, Essex—Schools and Alterations	Ramsey School Board	Start & Rowell, Architects, Colchester.
,,	3	London, S.E.—Two Underground Conveniences	Lambeth Borough Council ..	H. Edwards, Borough Engineer, Lambeth Town Hall, Kennington
,,	3	Hadleigh, Suffolk—School Buildings	School Board	Eade & Johns, Cornhill Chambers, Ipswich.
,,	4	Salford—Coal Shed Roof	Gas Committee	W. W. Woodward, Engineer, Gas Offices, Bloom Street, Salford.
,,	5	Bradford—Extension of Markets	Corporation	T. C. Hope & Son, 23 Bank Street, Bradford.
,,	5	Greenock—Tiling	Parish Council	Mr. Fairlie, 36 Nicholson Street, Greenock
,,	5	Stretford, Manchester—Buff Terra-Cotta	Urban District Council	E. Woodhouse, 88 Mosley Street, Manchester.
,,	5	Cromer—Chapel, Lodge, Gates and Boundary Wall at Cemetery.	Urban District Council	A. F. Scott, Surveyor, West Street, Cromer.
,,	5	Stretford—Electricity Generating Station	Urban District Council	E. Woodhouse, 88 Mosley Street, Manchester.
,,	6	Gwithian, Cornwall—Rebuilding Hotel	Redruth Brewery Co., Ltd. ..	Green, S.E. H. W. Collins, Architect, Walreddon, Redruth.
,,	6	Bradford—School	School Board	Adkin & Hill, Architects, Prudential Buildings, Bradford.
,,	7	Pontypridd—Hospital	Urban District Council	J. C. Jones, District Council Offices, Pontypridd.
,,	8	Truro—Rectory		Mission House, St. Mary's Street, Truro.
,,	8	Belfast—Electric Power Station	Great N. Ry. Co. (Ireland) ..	Engineer-in-Chief, Great N. Ry. Co., Amiens Street, Dublin.
,,	8	Beetham, Westmorland—Schools		J. F. Curwen, 26 Highgate, Kendal.
,,	8	Leeds—Excavators' and Concretors' Work in Connection with Hospital Foundations.	Sanitary Committee	T. Hewson, City Engineer, Municipal Buildings, Leeds.
,,	8	Llandovery, Wales—Cattle and Sheep Market	Corporation	Clerk, Town Hall, Llandovery.
,,	8	Walsall—School	School Board	H. E. Lavender, Architect, Bridge Street, Walsall.
,,	9	Enfield—Deaf Centre and Additions to School	School Board	G. E. T. Laurence, 22 Buckingham Street, Adelphi, W.C.
,,	10	Bristol—Infirmary	Union Guardians	J. J. Simpson, Clerk, St. Peter's Hospital, Bristol.
,,	10	Knighton, Plymouth—Dry Wall	Plympton St. Mary Rural District Council.	F. W. Cleverton, 4 Buckland Terrace, Plymouth.
,,	11	Hackney—Coal Stores	Borough Council	R. Hammond, 64 Victoria Street, Westminster, S.W.
,,	15	Llwyncelyn, Porth, Wales—School..		J. Rees, Hillside Cottage, Pentre.
,,	18	Woolwich—Municipal Buildings	Borough Council	A. B. Bryceson, Town Clerk, Town Hall, Woolwich.
,,	30	Wesham, Lancs.—Workhouse and Offices	Fylde Union Guardians	Haywood & Harrison, Accrington.
Oct.	7	Acton, W.—Refuse Destructor	District Council	D. J. Ebbetts, 242 High Street, Acton, W.
No date		Newry—Turbine Foundations and Turbine House		R. S. Ball, A.M.I.C.E., care of H. Thomson & Co., Newry.
	,,	Wombwell, Yorks—Chimney..	Urban District Council	J. Robinson, Clerk and Surveyor, Wombwell.
	,,	Thornton, Yorks—Houses		W. Pickels, Architect, Thornton.
	,,	Griffithstown, Mon—Houses	F. J. Bence	Swalewell & Creighton, Steam Packet Chambers, Newport, Mon.
	,,	Bexley Heath—Four Cottages		W. F. Potter, 18 York Grove, Queen's Road, Hatcham, S.E.
	,,	Newcastle-on-Tyne—Rebuilding Premises	Co-op. Wholesale Soc., Ltd. ..	F. E. L. Harris, 1 Balloon Street, Manchester.
	,,	Plymouth—Re-erection of Tenements, &c.		King & Lister, 8 Princess Square, Plymouth.
	,,	Beverley—Sunday Schools		W. J. Morley & Son, 263 Swan Arcade, Bradford.
		ENGINEERING:		
Aug.	28	Bristol—Foundations, Culverts, &c., at Electricity Works ..	Electricity Committee	H. F. Proctor, City Electrical Engineer, Temple Bank, Bristol.
,,	28	Dartford—Fire-Alarm Installation	Metropolitan Asylums Board ..	T. D. Mann, Clerk, Board's Offices, Embankment, E.C.
,,	28	Dartford—Fire Hydrants and Accessories	Metropolitan Asylums Board ..	T. D. Mann, Clerk, Board's Offices, Embankment, E.C.
,,	28	Doncaster—Electric Condenser Plant	Corporation Electricity Works ..	W. Wyld, Electricity Works, Grey Friars Road, Doncaster.
,,	28	Walton-on-Naze, Essex—Groyne	Urban District Council	H. W. Gladwell, Surveyor, Town Hall Chambers, Walton-on-Naze.
,,	28	Bury, Lancs—Tramway Materials	Tramways Committee	A. W. Bradley, Borough Engineer and Surveyor, Bury.
,,	29	Southampton—Fire Escapes, &c.	Corporation	Superintendent Johnson, Municipal Offices, Southampton.
,,	29	Burnley—Heating	Parks & Recr.GroundsCommittee	G. H. Pickles, Town Hall, Burnley.
,,	30	Derby—Filter Tunnels	Conservancy	Borough Surveyor, Babington Lane, Derby.
,,	30	Upholland, Lancs—Headgear, &c.	Urban District Council	Surveyor, Upholland, Lancs.
,,	30	Manchester—Electrical Repairing Stores	Tramways Committee	J. M. M'Elroy, 55 Piccadilly, Manchester.
,,	30	Santa Cruz de Teneriffe, Canaries—Landing Wharf		Direccion-General de Sanidad (Ministerio de la Gobernacion), Madrid.
,,	30	La Galea, Vizcaya, Spain—Lighthouse		Directorate-General of Public Works (Ministry of Agriculture, &c. and Public Works), Madrid.
,,	30	Ynistawe, near Clydach—Timber Bridge	Llangyfelach R.D.C.	Mr. W. Davies, 3 Gloucester Place, Swansea.
,,	31	Blackpool—Tramway Rails	Elec. & Tramways Committee ..	C. Furness, Borough Electrical Tramway Engineer, Blackpool.
Sept.	1	Valparaiso, Chile—Electric Tramways		Chilian Consulate, 10 Lime Street, E.C.
,,	1	Swansea—Telephone Equipment	Town Council	A. R. Bennett, 65 Renfield Street, Glasgow.
,,	1	Bardney, Lancs—Well..	Rural District Council	J. R. Elliott, Burton Buildings, Parliament Street, Nottingham.
,,	1	Glasgow—Steel Works	Caledonian Railway Co.	Divisional Engineer, 3 Germiston Street, Glasgow.
,,	1	Horsforth, near Leeds—Septic Tank, &c...	Urban District Council	Spinks and Pilling, 39 Prudential Buildings, Park Row, Leeds
,,	2	London, N.—Sluice Valves	Urban District Council	G. E. Eachus, Town Hall, Lower Edmonton, N.
,,	3	Burton-upon-Trent—Sewerage Works	Corporation	G. T. Lynam, Town Hall, Burton-on-Trent.
,,	3	Leith, Scotland—Sea Wall Works	Corporation	Burgh Surveyor's Office, Town Hall, Leith.
,,	3	Leytonstone—Washing Machine, &c.	Guardians of West Ham Union	Clerk's Office, Workhouse, Leytonstone.
,,	3	Naas, Ireland—Walls, &c.	Rural District Council	D. J. Purcell, Clerk, Workhouse, Naas, Ireland.
,,	3	Leicester—Electrical Tramway Works	Tramway Committee	E. G. Mawbey, Town Hall, Leicester.
,,	3	Ilkley—Abutment and Wings of Bridge	Wharfedale Estate Co., Ltd. ..	J. B. Fraser, 8 Park Square, Leeds.
,,	4	Swansea—Hydraulic Accumulators, &c.	Harbour Trustees	A. O. Schenk, Harbour Offices, Swansea.
,,	4	Swansea—Drawbridge	Harbour Trustees	A. O. Schenk, Harbour Offices, Swansea.
,,	4	Cork—Pumping Engines, &c.	Corporation	H. A. Cutler, City Engineer, Cork.
,,	4	West Ham—Piping	Town Council	J. K. Bock, Abbey Mills, West Ham.
,,	5	Southwold, Suffolk—Cliff Protection Works	Corporation	Borough Surveyor, Town Hall, Southwold.
,,	6	Naas, Ireland—Well, Pump and Wall	No. 2 Rural District Council ..	D. J. Purcell, Clerk, Board Room, Workhouse, Naas.
,,	8	Naas, Ireland—Wells and Sewerage Works	No. 1 Rural District Council ..	D. J. Purcell, Clerk, Board Room, Workhouse, Naas.
,,	8	Amsterdam—Cables		Director of the Elec. Wks., O. Z. Achterburgwal, 213 Amsterdam
,,	8	Brighton—Engines, &c.	Town Council	F. J. Tillstone, Town Clerk, Town Hall, Brighton.
,,	8	Llanelly—Masonry and Timber Bridges	Harbour Commissioners	J. V. Stewart, Engineer, Harbour Office, Llanelly.
,,	8	Amsteream—Electric Cabs	Municipal Council	Director of Electrical Works, O.Z. Achterburgwal 213, Amsterdam.
,,	9	Potton, Bedfordshire—Drainage Works	Rural District Council	T. J. Hooper, Clerk to Biggleswade, R.D.C.
,,	10	Bowes, near Barnard Castle—Waterworks	Startforth Rural District Council	J. E. Parker, Post Office Chambers, Newcastle-on-Tyne.

COMPLETE LIST OF CONTRACTS OPEN—*continued.*

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDERS MAY BE OBTAINED.
	ENGINEERING—*continued.*		
Dec. 13	Madrid—Canal Reservoir	——	Office of the Ministry of Agriculture, Commerce and Public Works, Madrid.
No date.	Wombwell, Yorks—Gas Mains	Urban District Council	J. Robinson, Town Hall, Wombwell.
,,	Retford—Pumping Engine	Committee of Corporation Water Undertaking.	J. B. Fenwick, Gas and Water Office, Retford.
	IRON AND STEEL:		
Aug. 28	Bury, Lancs—Tramway Materials	Tramways Committee	A. W. Bradley, Borough Engineer, Corporation Offices, Bury.
,, 30	Stretford—Steelwork for Electricity Generating Station	Urban District Council	E. Woodhouse, 88 Mosley Street, Manchester.
,, 30	Pietermaritzburg—Rails, &c.	——	Ford Brothers, 1.. Southampton Street, Fitzroy Sq., London, W.
,, 30	Karlsruhe—Six Locomotive Boilers	——	State Railway, Karlsruhe, Germany.
,, 31	London, E.C.—Wheels, Axles, &c.	Great Indian Peninsula Ry. Co.	Secretary's Office, 48 Copthall Avenue, London, E.C.
,, 31	Blackpool—Rails	Elec. & Tramways Committee	C. Furness, Electrical and Tramways Engineer, Blackpool.
Sept. 1	London, S.W.—Rails and Fishplates	——	Agent-General for Victoria, 15 Victoria Street, S.W.
,, 1	Southampton—Stud Chain, Anchors, Buoys, &c.	Harbour Board	W. Bowyer, Superintendent, Harbour Office, Southampton.
,, 1	Lancaster—Railings	Streets Committee	J. C. Mount, Borough Surveyor, Town Hall, Lancaster.
,, 1	Manchester—Steelwork	Electricity Committee	City Surveyor's Office, Town Hall, Manchester.
,, 3	Leytonstone—Ironmongery	Guardians of West Ham Union	F. E. Hilleary, Workhouse, Leytonstone.
	FURNITURE:		
Aug. 30	East Ham—Furnishing Council Chamber	Urban District Council	H. A. Cheers, 35 Waldegrave Park, Twickenham.
Sept. 2	Plymouth—700 Desks, &c.	School Board	E. C. Cook, 18 Princess Square, Plymouth.
,, 2	Isleworth—Furniture, &c.	Guardians of Brentford Union	Union Offices, Isleworth, W.
	PAINTING AND PLUMBING:		
Aug. 31	Rochdale—Painting	——	Apply at 48 Spotland Road, Rochdale.
,, 28	Bradford—Painting Warehouse	J. Brooke & Co.	Mr. Atkinson, Solicitor, Selby.
,, 28	Menston—Lead, &c.	——	Clerk, Asylum Committee, County Hall, Wakefield.
Sept. 1	Hull—Painting at Workhouse	Sculcoates Union Guardians	T. B. Atkinson, 11 Trinity House Lane, Hull.
,, 1	Alfreton—Church Decoration and Painting	Methodist Free Church Trustees	J. Wheatcroft, King Street, Alfreton.
,, 2	Isleworth—Painting and Cleaning	Guardians	W. H. Ward, Paradise Street, Birmingham.
,, 3	Bridge—Painting at Workhouse	Union Guardians	T. L. Collard, Clerk, Bridge, Canterbury.
,, 6	Preston, Lancs—Painting	County Council	W. C. Hall, County Offices, Preston.
,, 8	Nottingham—Painting	——	Poor Law Offices, Nottingham.
No date	Harthill, Sheffield—Painting, &c.	School Board	J. C. Jenkinson, Clerk, Woodall, Sheffield.
,,	Wombwell, Yorks—Painting	Urban District Council	J. Robinson, Town Hall, Wombwell.
	ROADS AND CARTAGE:		
Aug. 28	Barnet—Granite	Urban District Council	H. York, Surveyor, Council Offices, Barnet.
,, 30	Bourne—Carting	Rural District Council	A. J. Metcalfe, Surveyor, Bourne.
,, 30	Halifax—Street Formation	——	W. C. Williams, 29 Southgate, Halifax.
,, 30	Rickmansworth—Granite	Urban District Council	A. Freeman, Surveyor, Town Hall, Rickmansworth.
,, 30	Surbiton—Street Works	Urban District Council	Council Offices, Ewell Road, Surbiton.
,, 30	Penarth, Wales—Roads, &c.	Urban District Council	E. J. Jones, Caledonian Chambers, St. Mary Street, Cardiff.
Sept. 1	Otley, Yorks—Street Works	Urban District Council	J. E. Sharpe, Council Offices, Otley.
,, 1	Chorlton-cum-Hardy, Lancs—Clinkers	Urban District Council	A. H. Mountain, Engineer, Town Hall, West Disbury, near Manchester.
,, 1	Southampton—Tarpaving Playgrounds	School Board	J. H. Blizard, Architect, Lansdowne House, Castle Lane, Southampton
,, 2	Cleethorpes—Street Works	Urban District Council	E. Rushton, Surveyor, Poplar Road, Cleethorpes.
,, 4	Castleford—Sewer	Urban District Council	W. Green, Surveyor, Council Offices, Castleford.
,, 4	West Ham, E.—Paving Tramways	Corporation	J. G. Morley, Borough Engineer, Town Hall, West Ham, E.
,, 5	Soothill, Upper Yorks—Kerbs, &c.	Urban District Council	J. Blackburn, Surveyor, Shaw Cross, near Dewsbury.
,, 6	Watford—Cartage	——	Abbots Langley Gas Co., 13 King Street, Watford.
,, 9	London, S.E.—Kerbing	Lewisham Borough Council	Town Hall, Catford.
,, 12	Halifax—Paving	Highways Committee	J. Lord, Borough Engineer, Town Hall, Halifax.
	SANITARY:		
Aug. 28	New Barnet—Sewers, &c.	Urban District Council	H. York, Surveyor, Station Road, New Barnet.
,, 28	Rotherham—Sewerage Works	Rural District Council	J. Platts, Engineer, High Street Rotherham.
,, 28	Hendon—Pipe Sewer	J. E. B. Cox	Pollard & Tingle, 31 Old Queen Street, Westminster.
,, 28	Hendon—Drainage Works	J. E. B. Cox, Esq.	Pollard & Tingle, 31 Old Queen Street, Westminster.
,, 30	Earsdon, near Newcastle-on-Tyne—Sanitary Work	Urban District Council	J. R. MacMillen, Council Offices, Shiremoor.
,, 30	Penarth, Wales—Drains, &c.	Urban District Council	E. J. Jones, Caledonian Chambers, St. Mary Street, Cardiff.
Sept. 2	Ynysybwl, Wales—Sewers	Urban District Council	J. Williams, Surveyor, Town Hall, Mountain Ash.
,, 3	Bexley Heath, Kent—Sewers, &c.	Urban District Council	Public Hall, Bexley Heath.
,, 3	Lowestoft—Sewers, &c.	Town Council	G. H. Hamby, Borough Engineer, Town Hall, Lowestoft.
,, 3	Richmond, Surrey—Sewers	Town Council	J. H. Brierley, Borough Surveyor, Town Hall, Richmond, Surrey.
,, 3	London, S.E.—Two Underground Conveniences	Lambeth Borough Council	H. Edwards, Borough Engineer, Lambeth Town Hall, Kennington Green, S.E.
,, 8	Naas, Ireland—Sewerage Works	No. 1 R.D.C.	F. Bergin, Engineer, Kildare.
,, 9	West Molesey, Surrey—Sewerage Works	Urban District Council	J. Stevenson, Engineer, District Council Offices, East Molesey.
,, 9	Stratton, Wilts—Sewerage Works	Rural District Council	Beesley, Son & Nichols, 11 Victoria Street, Westminster, S.W.
,, 15	Northallerton—Drainage Works	Rural District Council	W. Fowle, Clerk, Northallerton.
,, 20	Burnley—Sewerage Works	Rural District Council	S. Edmondson, 18 Nicholas Street, Burnley.

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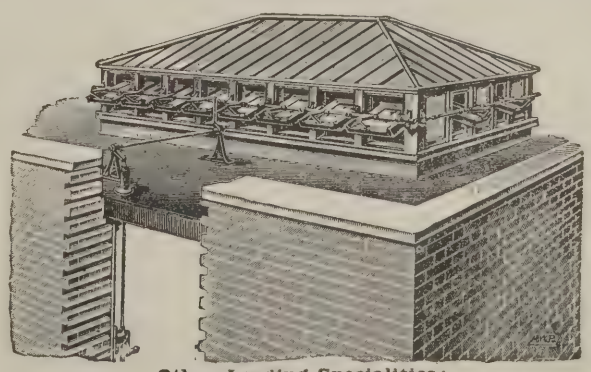
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COMPLETE LIST OF CONTRACTS OPEN—*continued.*

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDERS MAY BE OBTAINED.
	TIMBER:		
Aug. 30	Pietermaritzburg—Sleepers	Corporation	Ford Brothers, 12 Southampton Street. Fitzroy Square, Londo n, W.
,, 29	London—Red Fir Telegraph Poles	General Post Office	S. C. Hooley, Controller of Stores, General Post Offic', E.C.

COMPETITIONS OPEN.

DATE OF DELIVERY.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Aug. 30	Sunderland—Police and Fire-Brigade Buildings .. .	£100, £50, £25.	Borough Engineer, Town Hall, Sunderland.
,, 30	Deptford, S.E.—Town Hall and Municipal Offices	£100, £75, £50.	V. Orchard, Town Clerk, 20 Tanner's Hill, Deptford, S.E.
Sept. 1-14	St. Petersburg—Bridges over Great Neva River	———	St. Petersburg Gorodskaja Uprawa, St. Petersburg.
,, 7	Southend—Church, Clergy House, Hall, &c.	———	C. H. J. Talmage, Southchurch Road, Warnor Square, Southend-on-Sea.
,, 15	Liverpool—Labourers' Dwellings	£250, £150, £100.	Town Clerk, Liverpool.
,, 16	London, S.E.—Artizans' Dwellings..	£100, £60, £40.	F. Ryall, Town Clerk, Bermondsey Town Hall, Spa Road, S.E.
,, 23	London, N.—Municipal Buildings, Fire Station, Baths, &c...	£200, £100, £50.	W. H. Prescott, Engineer, U.D.C. Offices, Tottenham.
,, 25	Bideford—Municipal Offices	£30, £15, £10.	W. B. Seldon, 18 The Quay, Bideford.
,, 29	Bideford—Municipal Offices and Public Library	£30, £15, £10.	W. B. Seldon, Town Clerk, 18 The Quay. Bideford.
Oct. 1	Maidenhead—Free Library	£50, £20, £10.	John Kick, Town Clerk, Guildhall, Maidenhead.
.. 14	Newark—Alterations and Additions to Infirmary	£21.	Mr. H. Colton, Clerk to Guardians, 27 Lombard Street, Newark.
Nov. 1	Allahabad—Memorial to Queen Victoria	2,000 Rs.	H. N. Wright, Indian Civil Service, Allahabad, India.
Jan. 31	Cape Town—University Buildings	£400, £200, £100.	Agent-General for the Cape of Good Hope, London.

Tenders.

Information from accredited sources should be sent to "The Editor" at latest by noon on Monday if intended for publication in the following Wednesday's issue. Results of Tenders cannot be accepted unless they contain the name of the Architect or Surveyor for the work.

Addressed postcards on which lists of tenders may be stated will be sent post free on application to the Manager, BUILDERS' JOURNAL, *Effingham House, Arundel Street, Strand, W.C.*

Benwell (Northumberland).—For the erection of eighteen houses in Colston Street, Benwell. Messrs. Farthing & Dunn, architects, 21 Pilgrim Street, Newcastle:—

Atkin, Burrell & Co., Newcastle-on-Tyne	£6,700 0
J. W. Dixon, Newcastle-on-Tyne . ..	6,570 0
W. Worley, jun., Newcastle-on-Tyne..	6,147 0
M. Morris, South Benwell	6,048 0
J. McEwan,* 18 Walker Terrace, Newcastle-on-Tyne	5,790 12

* Accepted.

CHELTENHAM.—For laying water-mains between Tewkesbury and Cheltenham for the Corporation. Mr. J. Hall, M.I C.E., water engineer:—

J. Langley & F. Westmoreland, Kirton, near Boston, Lincs.	£9,317 0 0
A. Beale, 43 Gleneagle Road, Streatham, London, S.W.	8,000 0 0
S. Wood, 10, Richmond Avenue, Montpellier, Bristol	7,800 0 0
Reid, Bros., 12 Wharf Road, City Road, London, N.	7,354 0 0
J. Moffat, 38 Arcade Chambers, St. Mary's Gate, Manchester	6,797 12 8
S. Ambrose, 19 Green Park, Bath ..	6,634 0 0
J. Durnford & Son, Upton Road, Bedminster, Bristol	6,634 0 0
B. Firth, 58 Bishopthorpe Road, York	6,165 7 4
W. L. Meredith & Co., Ltd., Mill House, Whitecroft, Lydney	£6,152 0 0
J. Dickson, Townsend, St. Albans ..	5,957 0 0
J. E. Kaye, Huddersfield	5,900 0 0
H. Roberts, Hourwithy, Ross	5,640 0 0
H. E. Buckley, Bingley	5,280 0 0
M. Williams & Co., Cheltenham ..	5,176 10 0
Case Sea-Defence Syndicate, Ltd.. .	5,108 0 0
A. E. Nunn, Tenderden, Kent	5,000 0 0
Jowett Brothers, Burscough	4,788 13 4
T. Vale, Stourport	4,583 3 4
T. Rowland, Sandiway, Northwich	4,500 0 0
J. W. Dean, Contractor's Office, Chale Waterworks, Isle of Wight	4,426 13 4
W. Jones & Sons, Neath, South Wales	4,300 0 0
J. H. Vickers, Ltd., Nottingham ..	4,165 0 0
M. Williams & Co.†	3,976 10 0
R. W. Barker, 5 & 6 Lowther Arcade, Harrogate*	3,947 0 0
J. Riley, Gloucester Road, Cheltenham	3,853 15 0

* Accepted subject to the proviso that the scheme and the loan required therefor is sanctioned by the Local Government Board. † Does not include compensation.

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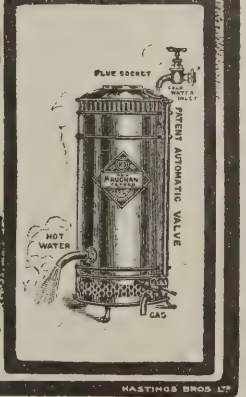
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Chester.—For the construction of about 2¼ miles of pipe sewers, with all necessary manholes, ventilators, flushing chambers, &c., bacteria filter-beds, effluent outfall, and other works connected therewith, for the Neston and Parkgate Urban District Council. Messrs. Knowles & Russell, engineers, 5 Castle Street, Liverpool:—

T. Rowland, Northwich	£14,374 14 4
Jowett Brothers, Burscough	8,536 1 6
W. Thornton & Sons, Wellington Road, Liverpool	8,160 14 6
R. T. Amery, Parkgate	7,798 0 0
J. Taylor,* Garston, Lancashire	7,192 13 11

* Accepted.

Clown (Chesterfield).—For the construction of a new main outfall sewer at Creswell, for the Clown Rural District Council. Mr. E. Hazeldine-Barber, A.M.I.C.E., engineer, Hollin Hill, Clown, Chesterfield:—

J. Jackson, Whitwell, via Mansfield	£1,888
Barker Brothers, Bradford	1,671
A. F. Houfton, Mansfield	1,627
W. Thomason, Whitwell, via Mansfield	1,623
J. C. Turner, Barlborough, via Chesterfield	1,539
C. Fulcher, Millstown, Bolsover	1,530
R. Wood, Bakewell	1,463
Cope & Raynor,* Lenton, Nottingham	1,335

* Accepted.

Brighton.—For alteration and additions to the "Railway Mission Hall," Brighton. E. J. Hamilton, M.S.A., architect, 2 New Road, Brighton:—

H. Penfold	£1,167	Saunders Brothers	£1,039
Garrett & Co.	1,105	Brown & Sons*	869
J. Barnes	1,090		

* Accepted. [All of Brighton.]

Dorchester.—For laying cast-iron pipes, constructing reservoir, erecting engine-house, and contingent works in connection with the Maiden Newton water supply, for the Dorchester Rural District Council. Mr. Frederick W. Mager, engineer, Aldridge, Walsall:—

Wills & Sons, Bath	£1,475 0
T. Vale, Stourport	1,164 0
Case Sea-Defence Syndicate, London	1,130 17
Shardlow,* Nottingham	1,093 0

* Accepted. [Engineer's estimate, £1,259.]

Eastbourne.—For the erection of proposed park-keeper's lodge and refreshment building at Hampden Park, for the Pleasure Grounds Committee. Mr William Chapman Field, borough architect and surveyor. No quantities:—

Refreshment building.

A. J. White	£1,125 0
W. Backhurst	1,060 0
R. H. Stanbridge	1,100 0
M. Hookham	958 0
W. & E. Noakes*	816 10

Park-keeper's lodge.

W. Backhurst	£800 0
A. & E. Noakes	559 0
A. J. White	520 0
M. Hookham	496 8
R. H. Stanbridge*	475 0

* Accepted. [All of Eastbourne.]

Fleur-de-Lis (Mon.).—For the erection of ten workmen's dwelling-houses at Fleur-de-Lis, Mon. Mr. George Kenshole, architect, Station Road, Bargoed:—

J. Williams, 7, Monthermer Road, Cardiff	£2,187 10
W. Leo, Fleur-de-Lis	2,000 0
H. R. Paul, Bargoed	1,955 0
E. Edwards, Gilfach, Pengam	1,825 0
T. Matthews,* Bedwas, Mon.	1,755 0

* Accepted.

Hull.—For taking down part of the existing premises and the rebuilding of the Empress Inn, Alfred Gelder Street, for the City Improvement Committee. Mr. Joseph H. Hirst, city architect:—

F. Southern, Wright Street	£2,328
M. Harper, Brunswick Avenue	2,287
T. Groates, Brunswick Avenue	2,156
Hockney & Liggins, Witham	1,994
Hull Joiners, Ltd.,* Charlotte Street	1,916

* Accepted. [Rest of Hull.]

Hull.—For the erection of eleven artisans' dwellings in New Bridge Road, for the City Improvement Committee of the Corporation. Mr. Joseph H. Hirst, city architect:—

H. Sanderson, Ivedene, Ella Street	£3,105 2 11
F. Singleton, Witham	3,000 0 0
J. Simpson & Son, Woodcock Street	3,000 0 0
Hill & Stevenson, 4, Chesnut Avenue, Queen's Road	2,987 0 0
W. Sanderson, Temple Street	2,842 0 0
J. R. Woods, Witham	2,821 10 0
T. Blackburn & Son, Peel Street	2,793 0 0
T. Goates, Brunswick Avenue	2,777 0 0
Hull General Builders, Ltd.,* Lockwood Street	2,759 0 0

* Accepted. [Rest of Hull.]

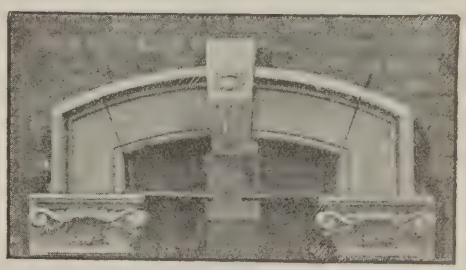
Hull.—For the necessary works in connection with the foundations of buildings which are proposed to be erected on the west side of Victoria Square, for the Property Committee of the Corporation. Mr. Joseph H Hirst, city architect:—

Boyce, Bradley & Co., 3 Ella Villas, Holderness Road	£4,225 13 6
T. Goates, Brunswick Avenue	4,200 0 0
W. Harper, Brunswick Avenue	4,111 10 0
W. Burkett, 1 Crystal Villa, Victor Street	3,960 16 10
H. Medforth, 49 Eastbourne Street	3,807 3 6
J. Sangwin,* Northumberland Avenue	3,608 6 6

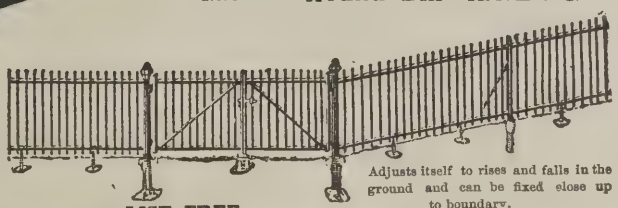
* Accepted. [All of Hull.]

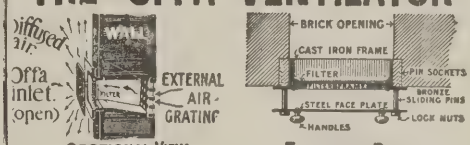
Kinfauns Castle (N.B.).—For supply and erection of an electric lighting plant at Kinfauns Castle, N.B. Mr. Morgan Williams, M.I.C.E., consulting engineer, 39 Victoria Street, Westminster, S.W.:—

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Macaulay, Clarke & Maclaren, Glasgow	2,090 15 0
Ditto (alternative tender)	2,040 15 0
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Ditto (alternative tender)	2,020 15 0
Lowdon, Brothers & Co., Dundee	2,058 19 6
Ditto (alternative tender)	2,008 19 6
Mavor & Coulson, Ltd.,* Glasgow	2,079 5 0
Ditto (alternative tender)	1,939 5 0

* Accepted.

Lewes.—For the erection of board-room and offices, West Street, for the guardians. Mr. Henry Card, architect, 10 North Street, Lewes:—

E. Hammond	£3,799
W. Wells	3,660
Peerless, Dennis & Co.,* Eastbourne	2,568
Noakes & Son	2,893

* Accepted.

London, N.—For the erection of school buildings at Harringay, for the Hornsey School Board:—

Colls & Sons, 5 Coleman Street, E.C.	£50,460 0
Perry & Co., Bow, E.	49,538 0
Foster & Dicksee, Rugby and London	49,421 0
J. Willmott & Sons, Hornsey, N.	49,337 0
Kirk & Randall, Woolwich	49,320 0
Rudd & Son, Grantham	48,888 0
Patman & Fotheringham, Islington, N.	47,454 0
Treasure & Son, Holloway, N.	46,956 0
H. Knight & Son, Tottenham, N.	45,490 14
McCormick & Sons,* Essex Road, N.	43,676 0

* Accepted.

Purley.—For the construction of roadway at Foxley Estate, Purley. First portion, Mr. Frank Windsor, architect and Surveyor, 9 & 10 Bank Buildings, George Street, Croydon:—

Streeter Brothers, Croydon	£1,223
W. Langridge, Croydon	929
F. Chappell,* Purley	922

* Accepted.

London, N.E.—For the erection of bridge and approaches over the Great Eastern Railway Company's lines, for the trustees of the late Viscount Eversley. Messrs. Wigg, Oliver & Hudson, architects, 80 Leman Street, E. Quantities by Messrs. C. Stranger & Son:—

Perry & Co.	£11,866
Chafen & Newman	11,821
M. Patrick & Son	11,628
Wilkinson Brothers,* Finsbury	11,431

* Accepted.

Plymouth.—For the erection of Hyde Park Road School, for the Plymouth School Board. Mr. Henry J. Snell, architect, Plymouth:—

J. Paynter	£18,699	S. Roberts	£17,321
J. Partridge	18,650	Allen & Tozer	17,233
A. Andrews	18,600	J. P. Berry	17,218
T. May	18,275	G. B. Turpin	16,997
Wakeham Bros.	18,107	Richards	16,727
Pearn Brothers	17,998	A. N. Coles	15,920
W. E. Blake	17,382	W. J. Jinkin*	15,350

* Accepted. [All of Plymouth.]

Sherwood (Nottingham).—For the erection of detached house, private road, Sherwood. Mr. W Dymock Pratt, architect Long Row, Nottingham:—

F. Messom	£1,334
J. G. Thomas, Lenton Boulevard, Nottingham	1,315
T. Cuthbert, Hyson Green, Nottingham	1,299
W. Maule, Mansfield Road, Nottingham	1,273
J. Oliver & Son	1,263
J. Cooper & Son, Ltd., Forest Road, Nottingham	1,250
W. & J. Simons, West Bridgford	1,249
W. Tuck,* Sherwood	1,182

* Accepted.

Stoneham (Hants).—For draining outfall works, engine-house, bacteria beds, and other works at North and South Stoneham, for the Rural District Council. Messrs. Bailey-Denton, Son & Lawford, engineers, Westminster:—

Reid Brothers	£31,086 12 10
F. W. Trimm	29,083 0 0
Price	28,986 16 8
John Jackson	27,052 17 4
Joseph Jackson	26,612 5 0
Streeter & Todhunter	26,260 0 0
G. Ossenton	26,012 0 0
H. J. Saunders	25,870 0 0
J. & T. Binns	25,120 13 0
Jones	24,981 12 0
Osman	24,587 14 4
Cooke & Co.	23,315 0 0
Plascott*	22,304 0 0

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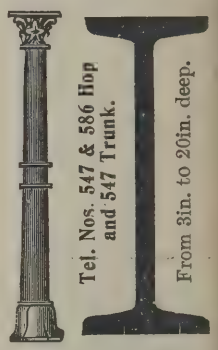
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Tube Railways. The September number of "The Chamber of Commerce Journal" contains an interesting, if not very far-reaching, article on Tube Railways from the pen of Mr. Reginald E. Middleton, M.I.C.E. The author appears either to have been cramped for space or somewhat appalled by the possibilities of his subject, for he is a long time in coming to grips with the pros and cons, but at the same time he has avoided needless technicalities and discussed his theme in a manner that will appeal to the average business man. The advent of the tube railway is an interesting subject; but we think Mr. Middleton has not grasped the main reason for their appearance and success. This may be summed up in the word *speed*. The constant acquisition of residential property for shops and office buildings has driven the residential quarters of London further and further out. Rents and rates have increased, and the average middle-class business man is forced to live further away from his business. He is luxurious in his habits; and requires more time for social intercourse, for boating, tennis, theatres or other recreations. It naturally follows that he requires a form of traction that will enable him to accomplish his journeyings quickly and at small cost. Omnibuses are necessarily slow, and the majority of the railway companies have never attempted to meet the demand for quick transit. A journey from the City to Hammersmith by the Metropolitan line takes fifty minutes irrespective of the time wasted in waiting for the right train. To get from Fulham to the City is an hour's journey from door to door. The Tube railway, with its quick, cheap and frequent service, has naturally been a success and will continue to be so. Mr. Middleton rightly deprecates the haphazard method in which the new tube lines are being projected and the want of system in laying out their courses. He also draws attention to the fact that they are hardly likely to reduce the street congestion, as they carry little or no luggage and no merchandise, and therefore do not affect the number of carriers' and other carts engaged in such work. This argument is constantly advanced in connection with the question of street-traffic, and is quite pointless. It seems to us quite immaterial whether goods are brought in carts from one of the main-line goods stations or from a tube merchandise station. Either way the cart has to be employed. In the one case the goods are carted perhaps two miles; in the other perhaps 200 yards. The cost of transferring the goods or the truck from the trunk line to the tube would probably make the tube carriage more costly, and it would be exceedingly difficult and expensive to construct the large sidings underground necessary to hold the trucks while they were being unloaded. In fact, all the arguments advanced with reference to street congestion only confirm our statement that the use of the tube railway is quick passenger transit. The tube railway promoter knows his fare, and we may be quite sure that he has reckoned with all the possibilities of the system.

An Entrance. The accompanying illustration shows the new entrance to Messrs. Vickers, Sons & Maxim's offices at their Naval Construction Works, Barrow-in-Furness. The new doorway, at present being inserted in the existing stone front to Ferry Road, is in red sandstone from St. Bees. On the inside a new entrance hall is formed with waiting-rooms, &c., on one side, the vestibule screen being in teak and leaded lights. The walls of the hall are panelled in teak 8ft. 6in. high, with a frieze above 3ft. 6in. deep, to be in Tynecastle canvas in relief, with teak cornice above. Mr. George Varley, of Barrow-in-Furness, has the contract for the stonework; the joinery work and parquetry floors to be prepared at the shipyard by the company's own joiners. The whole is to be worked from details prepared by the architect, Mr. W. Moss Settle, A.R.I.B.A., of Barrow-in-Furness.



W. MOSS SETTLE, A.R.I.B.A., ARCHITECT.



KRONBORG CASTLE, ELSINORE.

COPENHAGEN AND ITS SURROUNDINGS.

By G. R. BRYCE.

(*Concluded from p. 22, No. 394.*)

THE walls of Christiansborg Palace are still standing, and give an idea of its former splendour. It is said that the smell of burning was noticed about a fortnight before the flames burst forth, and that the fire lasted six weeks. The work of restoration will begin when sufficient funds are available, but as this seems an insurmountable difficulty the palace will probably remain as it is for many years yet.

Another building of which King Christian IV. was the founder and architect is the castle of Rosenborg. It was finished about the year 1625, and was a royal residence till the beginning of last century. Since shortly after its completion it has been used as a storehouse for art treasures, &c., and as the collection has grown with advancing years it now forms a chronological museum of the Danish kings. A visit to Rosenborg is one of the most interesting in Denmark. The collection is specially well arranged in the very rooms in which the royal owners of the different objects lived, and in passing through the castle one can form a good idea of the culture and history of Denmark during the last few centuries. The building itself, like the Exchange, is in the Dutch Renaissance style; and although some of the rooms have been preserved in their original state, others have been re-decorated in the Rococo style. The coronation chairs of the king and queen are to be seen here, and also three silver lions representing the Sound, the Great Belt and the Little Belt, which are used only at coronations, royal funerals and such ceremonies. These are in the Knights' Hall, which occupies the whole of the second floor of the building. The magnificient tapestries in this hall are by Bernt van der Eichen and date from the end of the seventeenth century. They depict various battle events. It is impossible to give in a few words any idea of the different objects to be seen in this collection. Royal robes, furniture, portraits, jewellery and carvings are among the treasures, and there are rooms containing collections of precious Venetian glass and different kinds of china from all parts of the world. The grounds of Rosenborg, generally called the King's Garden, form one of the fine public parks of Copenhagen. Some of the old trees are magnificent, and among the statues is one of Hans Andersen, of fairy-tale fame. He is represented sitting with one hand outstretched, as if relating an exciting part in one of his inimitable tales.

There is no definite record of Inigo Jones's work in Denmark, the probability being that no building in that country can be attributed entirely to him; but it appears that the royal architect of Fredericksborg acquired his services during the first quarter of the seventeenth-century, and therefore we may reasonably assume that the splendour of Rosenborg is due a good deal to his influence, and that he assisted King Christian IV. with the Exchange also.

Crossing the bridge which spans the strait separating the islands of Zealand and Amager, we reach the old suburb of Christianshavn, and a few minutes' walk brings us to Vor Frelsers Kirke (Church of our Saviour), which boasts a remarkable if not particularly elegant spire. Round the outside twists a stairway; the walls of the spire, instead of tapering, being perpendicular, and receding towards the centre as the stair ascends. The spire finishes with a huge gilt ball, on which stands a figure of Christ.

Reference to the illustrations of Røskilde will give the reader an idea of the most important of the cathedrals to be seen in Denmark. Half an hour's run by train from Copenhagen brings us to the old village, at one time the capital of Denmark, beautifully situated at the head of the fjord to which it gives its name. As early as the tenth century King Harald Blaatand erected a cathedral here, but, being of wood, it gave place to a more substantial edifice about the middle of the eleventh century. The present cathedral, dating from early in the thirteenth century, has been several times damaged by fire, but has always been restored. The early use of



KRONBORG CASTLE. ELSINORE.

the pointed arch, as well as some details of plan, are ascribed to French influence, and the cathedral is said to bear a resemblance to that of Tournai in Belgium. Rœskilde Cathedral has been the Danish royal burial-place for many generations, and anyone not objecting to a rather gruesome ten minutes may wander in and out among the coffins in the side chapels. Some of them of copper with embossed figures are worth seeing, but others merely covered with black velvet are decidedly shabby. In the triforium on the north side of the nave is the royal pew, dating from the beginning of the seventeenth century. It is richly carved and coloured, the figures representing Faith, Hope, Justice, &c. The forty-four choir stalls are ornamented by a series of carvings forming a frieze along the top. Like many of the mediæval carvings in our own churches, these crude figures are employed to illustrate Bible events with generally more accuracy than elegance or even delicacy. The panels depict such scenes as Adam and Eve in the Garden of Eden, Noah's Ark, Job and his friends, &c. In the last, Job is sitting in a chair, and the disease from which he suffered is represented by innumerable lumps all over the body. The comforters hover in the background. In one of the burial chapels are two magnificent wall paintings by Marstrand, each measuring about 7yds. square. One shows Christian IV. judging a nobleman, the other the same king at the battle of Femern, where, with bound-up wounds, he is exhorting his men to persevere, exclaiming "God is with us." The Danish national song, "King Christian stood by the lofty mast," is founded upon this incident. On the centre column supporting the vault in the chapel of King Christian I. are inscribed the heights of a number of royal persons, among them being Peter the Great, 79in., and Christian IX. (the present King of Denmark), 71in. At the west end of the cathedral there is an old dial with a kind of projecting platform above. On this platform are some wooden figures dating from about 1500—a man who, provided with a hammer, strikes the hours on a bell, and a woman who similarly records the quarter and half hours on a smaller bell. St. George, too, mounted on a grey horse, is seen encountering the dragon. Before the stroke of the hour the horse tramples upon the dragon, which forthwith utters a piercing shriek.

Few visitors leave Denmark without going to see Kronborg Castle. A terrace separating the castle from the sea-beach is the "platform before the castle of Elsinore" spoken of in "Hamlet." His grave is pointed out in a wood at Marienlyst, less than a mile distant. Krônborg was built first in 1574, but after a fire was restored by the architect-king Christian IV. in 1635. The courtyard, illustrated on this page, dates from the latter year. Beyond a visit to the chapel, and the ascent of the tower, there is not much to interest the visitor, as the castle is chiefly used as barracks.

The reader will have received from the foregoing notes an idea of a few of the objects of interest in and near Copenhagen, but the list is by no means an exhaustive one. For those who can make a lengthy sojourn in the country there is plenty to occupy the time. The old cathedrals of Ribe and Aarhus and the ruins of Koldinghus, &c., will repay a visit, while many days can be profitably spent in studying the museums and art galleries in Copenhagen itself. There are a number besides those already referred to—the National Art Gallery, containing many valuable pictures by Danish and other artists, the National Museum, the "Danske Folkemuseum," &c. Fredensborg, the king's autumnal residence, has not much attraction for the tourist, except its park, which is said to be the finest in Denmark. The Royal Shooting Box (of which an illustration was given last week) is situated in an open part of the deer forest (dejrehaven) near Copenhagen. It was built in 1736 by the architect De Thurah, but is only occasionally used now. The Danish "Derby" takes place on the racecourse near "The Hermitage." The china manufactured at the Royal Porcelain Factory is in many respects unique, the colouring and design of the different articles being out of the common. The clay for this particular china is procured at the island of Bornholm, in the Baltic. Living in Denmark is moderate, and the various places of interest are within easy reach of the capital by means of the government railways and the excellent steamers of the United Steamship Company.



THE COURTYARD, KRONBORG CASTLE.



PANEL, KRONBORG CASTLE.

COSMATI MOSAIC.

By CARYL COLEMAN.

THE arts and crafts, like everything else in this world, have their periods of growth and decay, seldom, however, reaching complete extinction, as each decadence, sooner or later, is followed by a new birth.

In no one of the arts and crafts is this fluctuation between life and death more marked than in that of the mosaicist. At first the art was employed almost exclusively in the making of floors, attaining in the course of time a high state of excellence, until mosaic pavements became universal throughout the Roman world of the early Empire. Very little in the way of wall mosaic was attempted before the reign of Claudius, and no work of importance was executed up to the time that Constantinople was made the seat of government. Then it was that Christianity, a new force in the world, called forth picture mosaics of great artistic merit.

The fall of the Roman Empire was fatal to the art in the West. For a time it ceased to exist. Then it was resuscitated by artists from the Orient. Hence, at the beginning the revival was largely governed in its expression by Byzantine methods of work and iconographic traditions, but later it developed along paths of its own, striking out for new roads of application and growth. In the East the art ultimately became circumscribed in its endeavour by a sterile and fixed



ROSKILDE CATHEDRAL.

conventionality, and because of its inflexible adherence to this conventionalism, together with the Mohammedan subjugation, it died of inanition.

The mosaics of Europe of the fourth, fifth, sixth and seventh centuries are noted for their great beauty and magnificence. There is a scarcely perceptible deterioration observable at the end of the period, but in the eighth and ninth centuries they are marked by a decided Byzantine feeling, imparted to them by the presence in Italy of a large number of Greek mosaicists, who had taken refuge there from the persecutions of the iconoclasts. During the tenth century there was an almost total cessation of the art. It revived again in the eleventh. Fairly good work was done in the twelfth, and much better in the thirteenth. Then it was that mosaic began to be used very widely as a purely architectural decorative material. In the fourteenth and fifteenth centuries the mosaicists returned almost exclusively to pictorial decorative work, while in the sixteenth and seventeenth centuries they became mere imitators of paintings in oil, and so dexterously are their mosaics made that they are continually mistaken by laymen for the original pictures of which they are copies. In the eighteenth century the art hardly existed. In the nineteenth it was called once again to life; and now in the twentieth century its value is fully recognized.

Apparently the artist in mosaic has a great future, because durable materials are being employed more and more, and mosaic is the only lasting substance possessing a large colour field, and at the same time adaptability for permanent polychromatic architectural enrichment.

As the use of mosaic is confined almost exclusively to decorative purposes rather than pictorial, it would seem well to study the works of the Cosmati, the great masters of this branch of the art: an Italian family of artists and craftsmen who, from father to son, for several generations practised their art with wonderful success. The family originally came from Anagni, a small hill-town thirty-seven miles E.S.E. from Rome, migrating to the capital at the end of the twelfth century, where they remained for over a hundred years, until the "Babylonish Captivity," as the Italians are pleased to call the removal of the papacy to Avignon. The Christian names of the most important members of the family are well known, but their surname is unknown. Just why historians and archæologists have agreed to designate them as the Cosmati is hard to say, although there is no doubt the name was derived from that of one of their number, Cosmatus. The time of their coming to Rome was at a period most favourable for their art, as it was a great building age. Cardinal Lothario Conti, like the Cosmati, a native of Anagni, had just been unanimously proclaimed Supreme Pontiff and saluted, because of his blameness life, by the name of Innocent. He was a man of force, an organiser and a masterful leader, who not only raised the papal power to its utmost height, but also infused Christendom with a spirit of creative activity which materially promoted the arts and crafts and opened a field for the employment of artistic genius of every kind.

The founder of the cosmatesque school of mosaic workers was one Laurentius, who on coming to Rome was at once admitted to citizenship, and made, in 1198, a member of the marble workers' guild, an organisation dating from 1150, which largely "accomplished its work at the expense of the ruins of Ancient Rome."

Laurentius, no doubt, acquired his art from Greek masters or their pupils, and for a time followed their method of work—although this could not have been for long, as it is fully proven that at an early stage in his career he showed an independence of thought and feeling that freed him from the trammels of tradition and Byzantine influence, and caused him to work from original motives. Applying, with wonderful artistic discretion, all the decorative resources of his art, he produced a style pervaded by a vigorous colour scheme in union with a strong design (far more so than the delicate ornamental mosaic of the Venetian school), a style refined, although touched perceptibly by the Western barbaric spirit, yet quite free from the rudeness of the Roman and the hardness of execution of the then Byzantine schools. He never considered mosaic by itself a thing apart from its surroundings, but always in conjunction with plain or sculptured marble surfaces: a decorative accessory to some architectural feature. So strongly was this use of mosaic fixed in his mind, that he invariably made his pavements, in design similar to those of the Byzantines, of slabs of marble cut to a given form and bordered with a fantasy of tessellated mosaic enrichment, a sort of combination of *Opus Alexandrinum* and *Opus Sectile* of the ancient Romans.

Laurentius, as a rule, employed white or light-coloured marble for his backgrounds, and these backgrounds, or fields, he inlaid with squares, parallelograms and circles of coloured marble and porphyry, surrounding them with ribbons of mosaic and separating them one from another with marble mouldings, carvings and plain bands, and further enriching these members with mosaic. The mosaic itself was composed of small tesseræ of antique glass, mixed with those made at that time. The first were found in great abundance in the ruins of Rome and other ancient cities, while the latter were easily obtainable, as the art of making coloured glass was then widely practised throughout the Christian world. The designs followed were purely geometrical: a beautiful development of a star motive, most ingeniously diversified not so much by change of form as by variation of colour.

Whatever work Laurentius may have executed previous to his becoming a Roman citizen has either been destroyed or can no longer be identified. That he worked in the church at Fabieri in 1190 is known, but nothing of the work itself is known. The first authentic examples of his subsequent work are in the church of the Ara Cœli at Rome: the epistle and gospel ambo, a choir-screen no longer in place but behind the high altar, and a pavement extending over the nave, aisles and transepts. This work, however, was not wholly his, as his son Jacobus was associated with him. This Jacobus, a most apt son of a most

skilled father, was not only a sculptor and mosaicist, but also an architect, a fact made known by inscriptions on the walls of the cathedral of Civita-Castellana. Jacobus took charge of the architectural alteration of this interesting building, while his father, and later his son, Cosmatus, assisted him with the decorations, sculpture, carvings and mosaics.

The cathedral was originally a basilica, but during the course of the centuries it was very much changed by additions and decorations, and lost its primitive simplicity; yet it is even now one of the most interesting ecclesiastical edifices in Italy, made so largely through the art of the Cosmati.

Similar work to this may be seen and studied in many churches in different parts of Italy: Toscanella, Corneto, Subiaco, Anagni, Viterbo and Salerno, but notably at Rome, where the Cosmati and their followers not only supplied the churches of the city with ambos, altars, paschal-candlesticks, thrones and screens, but also distant places as far away as this country: witness the shrine of St. Edward the Confessor in Westminster Abbey, which is unquestionably Cosmatesque work.

The brothers Deodatus and Johannus, the last of the Cosmati of whom anything is known, were pursuing their art at the end of the thirteenth and the beginning of the fourteenth centuries with the same enthusiasm displayed by their great-grandfather in the twelfth century. Deodatus built in 1296 over the high altar of St. Maria in Cosmedin, at Rome, a very beautiful marble and mosaic ciborium; and his brother, three years later, designed and executed in St. Maria Maggiore one of the most "elegant mediæval tombs in existence," that of Gonsalvus Rodrigo, bishop of Albano, and later, in 1304 in the church of St. Maria Sopra Minerva the tomb of William Durandus.

It is doubtful if the Cosmati have ever been excelled as decorative artists in mosaic, or been surpassed in their knowledge of the possibilities and limitations of mosaic as a decorative material; therefore, their works should be studied most carefully by all who are now attempting to use ornamental mosaic in a decorative way. Much can be gleaned from photographs about the forms they employed, and the proportional distribution of the mosaics to the conjoining plain and carved accompaniments, but their colour schemes can only be understood by examining the monuments themselves.

Some students, because of a seeming resemblance between the Cosmatesque mosaics and those of Monreale and the Cappella Palatina at Palermo, are inclined to deny originality to the Cosmati, and claim that their work was only a dexterous imitation of Silician and Oriental models, but this seeming similarity is only apparent when the mosaics are examined and compared superficially, for, in truth, the mosaics of the Cosmati are largely inlays, where the marble has been countersunk to receive the mosaic, accompanied with carvings, while the others are nothing more than ornamental dividing lines between plain sufaces, and often following in design floral and other naturalistic motives.

University College, Liverpool, and the R.I.B.A.—The following probationers having passed the examination recently held at University College, Liverpool, and received the Final Leaving Certificate granted by Prof. F. M. Simpson, and their Testimonies of Study having satisfied the Board of Examiners, they have been registered as Students R.I.B.A.:—J. L. S. Dahl (Hull), P. Dawson (Liverpool) and B. Oliver (Sudbury). The Institute is to be represented at the Liverpool University College Examination by a member of the Board of Examiners.

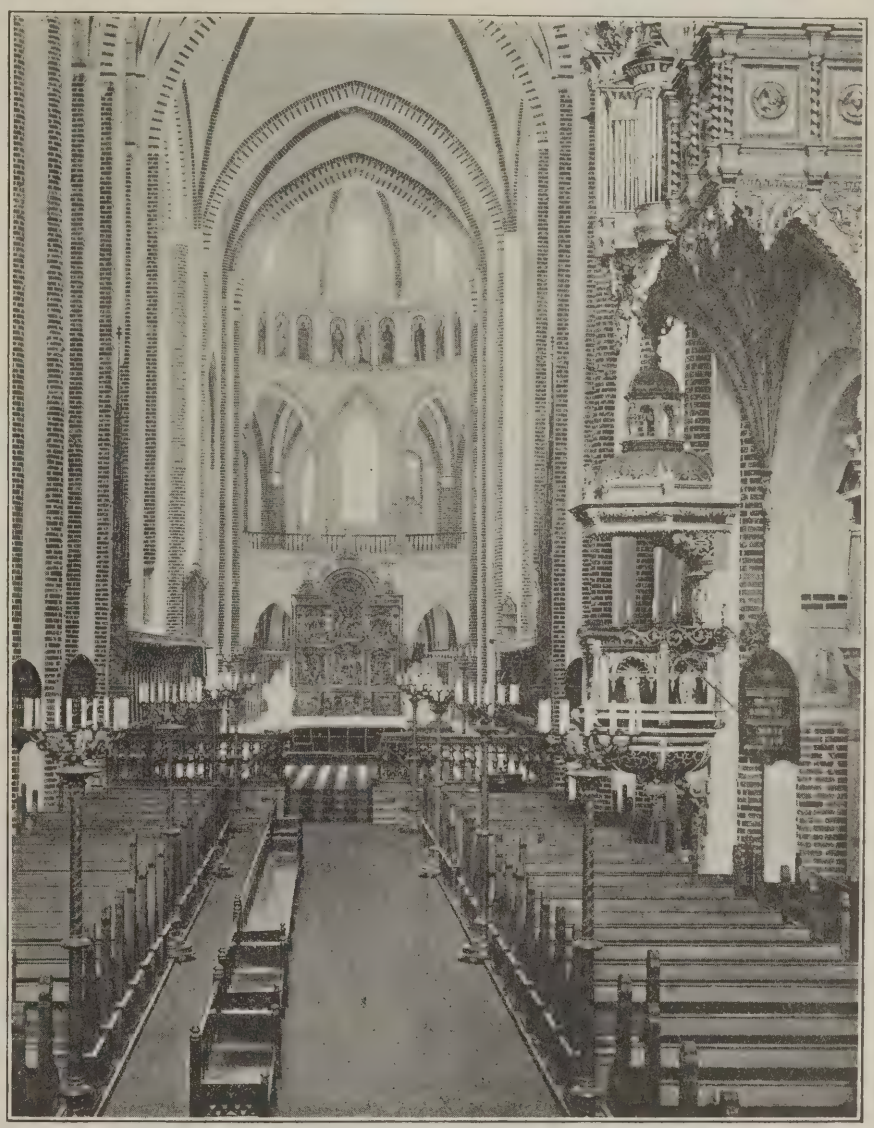
THE PUBLIC HEALTH CONGRESS.

THE Congress of the Royal Institute of Public Health was continued at Exeter on Monday of last week, when the section devoted to Municipal and Parliamentary Hygiene met for the first time, the Mayor of Plymouth, Mr. J. A. Bellamy, presiding.

In his opening address the President said that there was an ever-increasing desire to make life in our towns more healthful for the poor as well as for the rich. The problem ever present, however, was, in the first place, the education of public opinion, and, in the second, that of cost. The question was, What could be done by means of the machinery provided by municipalities or by Parliament to make days better than they were for those who lived in towns and cities? Abundance of pure air and water, a perfect drainage system and personal cleanliness would practically solve the problem. The starting-point of a municipality desirous of doing its duty in this respect should be the appointment of a medical officer whose whole time should be devoted to the duties of his office. By reason of the varying conditions in some towns compared with others, the lack of courage on the part of the Local Government Board, and the impracticable conditions imposed by that Department, very little progress had been so far made in providing the poor with dwellings where they could get plenty of pure air to breathe. The terms for the repayment of loans should be extended, and municipalities should be allowed to erect such dwellings as they pleased and as they might think best suited to local requirements. In conclusion, he urged the importance of public baths, muscular training for the young, and the adoption of methods to prevent the depopulation of country districts.

Housing the Working Classes.

In a paper on "The Housing of the Working Classes" Mr. J. W. Spear, M.P., said that private enterprise and philanthrophic methods might do something, but could not, unaided, do more than touch the fringe of the question. The State had a duty before it. While good work had been done by municipalities and local governing bodies through the extended power to erect buildings and assist the occupiers of small houses, failure to cope with the real evil was very marked, which might be partly due to natural causes and partly to the artificial conditions with which the powers of the local bodies were hedged and hampered. Owing to the cost attendant upon erecting workmen's dwellings in towns, he suggested that municipalities should purchase land in the country for the purpose, and as this would necessitate much more regular, constant and rapid transit from the centre to the outskirts, he urged that when municipalities were engaged in street improvements they should



ROSKILDE CATHEDRAL.

work with a view also to opening up of definite and easy modes of ingress to and egress from the town. In clearing and renewing houses, the very poorest men and women in casual work and those unable to pay the cost of journeying to the suburbs were rendered homeless. This resulted in greater overcrowding still in another area, and it was surely this class which really needed attention. Was it not desirable that some less expensive houses than those required by the Local Government Board should be allowed to be erected by the local authorities, who should have power to build dwellings simply in accordance with their own by-laws? He suggested an extension of the time for the repayment of loans.

Slums.

"The Treatment of Slum Populations" formed the subject of a paper by Mr. Paul Swain, chairman of the Sanitary Committee of the Plymouth County Council, who said that in the majority of cases failure had been the result of efforts of municipalities to provide dwellings for the working classes. Houses, as a rule, built for people displaced had not been occupied by those for whom they were intended. The result was the creation of a fresh slum. It was worse than useless to attempt to transplant this decadent mass of humanity from their congenial surroundings of squalor and misery to the serene atmosphere of municipal homes, built on the approved system of the Local Government Board. As an alternative, instead of abolishing slums, they should be reformed. For a comparatively small sum, many of these houses could be repaired and put in order, as had been done in Glasgow. It would be cheaper and more practical for municipal bodies to acquire slum properties, and to utilise them in this way rather than to spend large sums of money in building houses for the working classes, which hitherto had proved gigantic failures. But there must be firm control and a fearless and impartial treatment of all slum landlords. The good work of Glasgow was an admirable example of what might be done by private efforts. It would be quite feasible for all large towns to combine private effort with municipal authority. Why did not the various parochial organisations and philanthropic societies ally themselves with the municipal officers in their work amongst slum populations?

Mr. H. Tozer, the vice-chairman of the Committee for the Housing of the Working Classes, Westminster, said where the duty of individuals had failed in providing sufficient housing accommodation for the labour employed, it became the duty of the authorities to supply the deficiency. There existed a direct mandate to this effect from the King. Statistics were too strong to be ignored, and showed incontestably the necessity of systematic dealing with the present condition of working-class housing. It was more than a necessity. To-day it was an evil; to-morrow it might become a peril. The academic question was often raised as to how far municipalities should take upon themselves what might seem to be the duty of traders. Was not this the right axiom that municipal trading was justified and advisable where such things as were vitally necessary to the health and well-being of a community were inadequately provided by private enterprise, whether it were water, public lighting, tramways and other locomotion, housing of the poor, or other things. Our commercial supremacy, which depended in a great measure upon our raw labour, was seriously threatened, and it behoved us *inter alia* to wake up to the necessity of labour being properly sheltered. A chief and efficient system of locomotion offered the most immediate and least experimental, though not complete, solution of the housing problem.

Resolutions.

Mr. Taylor (Liverpool) proposed: "This Congress urges the Government, at the earliest possible moment, to give legislative effect to the recommendation of the Select Committee of the House of Commons that the repayment of loans on land and buildings be extended to eighty years." Mr. McGuffie (Liverpool) seconded the motion, which was carried. On the motion of Mr. Lawson, chairman of the sanitary committee, Leeds, the following resolution was also adopted:—"Local authorities should have a free hand to erect such buildings as best suit their local requirements, subject to compliance with the approved sanitary by-laws."

Mr. T. Poyntz Wright, of London, Fellow of the Institute of Public Health, read a paper on the desirability of appointing a Minister of Public Health, and moved "That in the interest of the public the health services of this country require organisation on a system suitable to modern conditions, and that this end would be furthered by the power and influence from the initiative of the Health Department of the Local Government Board being increased, and the Department formed into a Ministry of Public Health." Dr. Bushnell (Plymouth) seconded the resolution, which was adopted.

"The Plumbers' Registration Bill" was discussed in a paper by Mr. W. J. Addiscott (Plymouth), upon whose motion the following resolution was carried unanimously:—"That this Congress approves of the efforts made by the Worshipful Company of Plumbers in promoting the Plumbers' Registration Bill, believing that such a measure will be for the safeguarding of the public health and beneficial to all classes of the community, and appeals to the Government to give facilities and support to the measure."

The Congress was continued on Tuesday.

Before the Engineering and Architecture Section Mr. Donald Cameron, surveyor to the Exeter City Council, read a short paper entitled "Some Points in Municipal Sanitation," which gave rise to a discussion on the septic-tank system of sewage-disposal.

Sanatoria for Consumptives.

Dr. Frank Bushnell, hon. pathologist, South Devon and East Cornwall Hospital, Plymouth, read a paper on "Sanatoria for Consumptives," in the course of which he spoke of the sanatorium as a means of preventing tuberculosis, as a school for instruction in the principles of healthy living, and as a hospital for the restoration to health of children or adults suffering from consumption and other forms of tuberculosis. He also touched upon the need for after-care. Dealing, in conclusion, with the provision and maintenance of sanatoria, he said that both sanitary and poor-law authorities should provide for hospital accommodation for those patients affected with phthisis who, in consequence of poverty or surroundings, or the advanced stage of the disease, were unable to take the necessary precautions to prevent its extension.

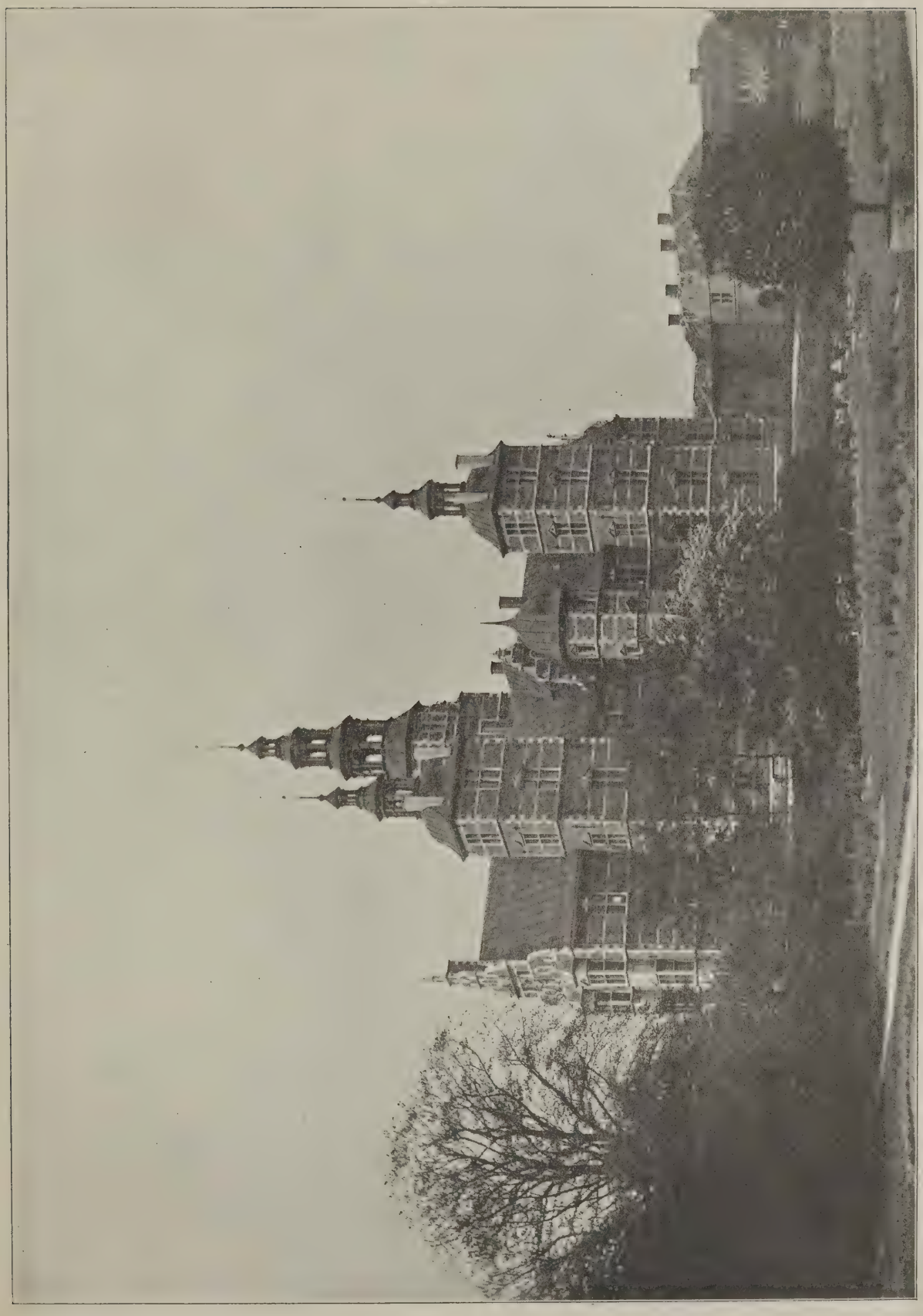
Mr. Harbottle Reed, architect, of Exeter, read a paper on "The construction of sanatorium buildings for consumptives," in the course of which he remarked that, although the ordinary principles of hospital construction were involved in the erection of sanatoria, there was a wide divergence of their respective requirements in many details. There appeared, he said, to be a concensus of opinion upon the desirability of a site possessing the following advantages—abundance of fresh air, a maximum amount of sunshine, shelter from winds, dry and well-drained soil, remoteness from roads or ground productive of dust, privacy and quiet, away from all smoke and noisy factories, grounds of sufficient extent to permit of walks, and southerly or south-south-easterly aspect as a rule. There was no accepted standard plan for the disposition of the buildings, but roughly they might be placed in four groups—the large self-contained block, the connected pavilion type, the disconnected pavilion type and the chalet system. Of first consideration were the patients' bedrooms, which were best placed on the south front, with only a corridor behind them. To ensure thorough ventilation, about half of one wall should be window space. Radiators appeared to present the easiest solution of the warming problem. English sanatoria usually had sleeping chalets raised above the ground. Furniture was a point on which much care was exercised to keep as plain and free from dust as possible. One recently erected sanatorium for twenty beds cost £325 per bed, and an additional block for eight beds would only cost £150 per bed.

The following resolution, which had come before the section previously, was passed at the conclusion of the papers:—"That the Royal Institute of Public Health be asked to co-operate with the British Association of Water Engineers in drawing the attention of Government to the urgent necessity in the best interests of public health of the formation of a national water board." In the afternoon there were excursions to Sidmouth, Ottery, Newton Abbot, Dartmoor and the Exeter City Asylum.

At the annual meeting of the Institute of Public Health at Exeter on Wednesday Professor W. R. Smith, of London, was elected president. The final meeting of the Congress followed, the mayor of Exeter presiding. Various resolutions adopted at the meetings of the sections were referred to the Council of the Institute for the purpose of effect being given to them.

THE A.A. PROGRAMME.

THE Architectural Association curriculum for the session 1902-3 has just been published. As usual the pamphlet commences with suggestions for the guidance of students attending the classes, lectures and studio, the day school taking first place. The programme of lectures and papers to be read arranged for the general meetings is, as usual, a good and comprehensive one. The annual general meeting will be held on October 3rd, when Mr. Henry T. Hare, F.R.I.B.A., will deliver his presidential address and distribute the prizes. The chief papers arranged for are:—T. R. Spence on "Homer and Architecture," F. C. Eden on "Roof Coverings," C. C. Brewer on "Some Notes on Sanatoria for Consumptives," J. S. Gibson on "Architectural Practice, Real and Ideal," W. H. Bidlake on "The Study and Delineation of Old Buildings," J. Dudley Forsyth on "The Attitude of the Young Architect towards the Crafts," Prof. G. Baldwin Brown on "What is the real value of Greek work to the Modern Artist?" H. H. Statham on "The Æsthetic Treatment of Modern Bridges," H. B. Creswell and A. W. S. Cross on "Competitions," W. Henry White on "Ancient and Modern Town Houses," Banister F. Fletcher on "Palladio," A. Needham Wilson on "Architecture and the Public." The Discussion section has also arranged for a number of interesting papers and lectures, namely, Noel F. Barwell on "Some Recent Theories concerning Saxon and Early Norman Work in England," H. Munro Cautley on "The Buildings about a Farm," George P. Bankart on "Decorative Plasterwork," J. S. Blunt on "Crosses," J. H. Pearson on "Some Points in Ancient Lights Practice," T. Norman Dinwiddy on "Poor-Law Buildings," Mr. Edward Spencer on "Gold- and Silver-smith's Work," W. L. Trant Brown on "Valuations," A. M. Watson on "Some Unorthodox Views about Building," and Henry Cotman on "A Tour in Gloucestershire."



ROSENBORG CASTLE. THE EAST FRONT.

A SEAMEN'S HOSPITAL.

A NEW Seamen's Hospital at Cardiff is now being erected on a site near the Docks. The soil on which it is being built consists of soft clay or silt for a depth of 19ft. or 20ft., and below the old surface under this silt is the drift gravel. The first operation has been the raising of the level of the site by filling. Fortunately, a new graving dock was being excavated for the Mount Stuart Dry Dock Co. by Mr. James Allan, contractor, at the time this work was required, and arrangements were made with him for the necessary filling. The original ground was so soft that the new filling sank into it, and a very much larger quantity was required than appeared necessary at first. It soon became evident that the foundations for even the one-storey buildings could not be risked on this soft clay, and that they must in some way be carried down to the gravel. Piling naturally suggested itself, but on driving an experimental pile it was found that it so shook the adjoining ground as to cause a risk of injury to the houses there. The foundations have now been constructed with piers of concrete carried 2ft. into the gravel. These piers vary in dimensions according to the work they have to do, but are generally 4ft. wide and from 4ft. to 8ft. or 9ft. long. They also vary a good deal in their distance apart, from 6ft. to 9ft. or 10ft. They consist of cement-concrete for 4ft. in height from the bottom, and of lime-concrete above. A cement-concrete lintel 4ft. thick runs along the tops of the piers and forms the footing for the walls. In some parts of the building a slab of concrete takes the place of the lintels. The surface of the gravel proved to be at a very uniform level. Owing to the very soft nature of the clay great difficulty was experienced by the contractor in getting the shafts for the piers sunk, as the clay worked up from the bottom of the hole below the timbering. However, by perseverance and skill the difficulties were got over, and it is believed a thoroughly good foundation has been secured.

The superstructure will consist of the hospital wards, the administrative block, doctor's house, operating theatre, laundry, &c. The entrance to the hospital will be in Ferry Road. From the entrance porch a corridor will run straight to the wards. On the right of this corridor on entering will be a waiting-room for out-patients, with consulting-room, dispensary, &c., and a small accident ward for receiving and examining cases before sending them on to the wards. Also on the right of the corridor will be the main stairs with a bed-lift in the well of the stairs. On the left of the corridor will be the kitchen, staff-room, stores, &c., and at the end of the corridor the wards and their adjuncts. The wards will be on three floors, a main ward containing sixteen beds and a small ward with two beds on each floor—fifty-four beds in all. At the entrance to the wards will be the duty-room, with lifts, pantry, &c., and at the further end of the main ward a large day-room facing south, with lavatories, bathrooms, sink-rooms and emergency stairs. There will also be a large recreation-room on the first floor in the front of the building.

The wards and corridors will be heated by low-pressure hot water, and will, probably, be lighted by electricity. The ventilation will be natural, with air inlets near the floor, and outlets into flues near the ceiling. The incoming air will be warmed in cold weather by radiators. The floors of the wards will be of marble terrazzo. The walls and ceilings will be finished with fine Portland-cement rendering, worked to a smooth surface and painted. The operating theatre and Rontgen-ray room will be connected to the administrative block by a covered way. There will also be a small mortuary, viewing-room and postmortem-room.

The doctor's house will be at the western side of the site, and will be connected by a covered way with the administrative block. A small infectious ward is to be provided, which will have no internal communication with the rest of the building.

The buildings will be built of red bricks, with red-stone, Bath-stone and terra-cotta dressings. The surroundings appeared to suggest a building somewhat Dutch in character, and this has been attempted. With the exception of the principal front to Ferry Road, the building is quite plain.

The architect for the building is Mr. E. W. M. Corbett; the contractors are Messrs. W. Thomas & Co., Tresillian Terrace, Cardiff; and the clerk of works is Mr. John Evans, Cardiff. The contract for the filling in and raising of the site was let to Mr. James Allan for about £2,000. The contract price for the foundations is £4,000 and £17,000 for the superstructure. The total cost when equipped and furnished is estimated at over £30,000.

EVOLUTION IN DESIGN.

MR. WALTER CRANE, in the "Magazine of Art" for September, in an article on modern decorative art as shown at the Turin Exhibition, says: "There appears to be a law of evolution working in the arts of design quite as inevitably as in the natural world. Certain germinal motives, derived from forms in nature or art, are combined by the fancy of the designer. A conflict for pre-eminence, a struggle for existence, takes place in the mind of the artist, as his hand records the stages of the evolution of his design, either on paper or in some plastic material. In view of his ultimate purpose—the use and destiny of the design—certain lines, certain forms, prevail over others as the most fitting; the design sheds inessentials and takes final shape. It may closely follow the principle of its inception, or it may, passing through a multitude of complex stages, finally be evolved in some very different shape; but in either case its development proceeds much as the development of a plant from its seed germ to its full completion and flower, always strictly adapted to its environments. I would not say that forms of design, say surface-design, are always so strictly adapted, and one must always, of course, allow room for individual caprice and wilful extravagance and the desire for originality. The limits, however, of even these apparently spontaneous impulses are more restricted than might be supposed. Efforts to be new and original sometimes lead to results curiously similar in form to work of former epochs, where the constructive principle in design has been obscured. For instance, I noted in more than one new art restaurant building in the Parc Valentino (near the exhibition buildings) that which, in its general masses and distribution of ornament, in its absence of rectangles or verticals, or constructive feeling, curiously recalled buildings of the late eighteenth century, or what would be called in Hungary 'Maria Therese' type. Extremes meet, and our twentieth-century new art touches, in its least consciously artistic form, the rococo decorative confectionery of the palaces of the eighteenth century."

A New Police Court at Wilmslow has been erected for the Cheshire County Council (the architect being Mr. Beswick and the contractors Messrs. Meadows, of Southport) at a cost of about £6,000. There is a convenient court-room, and there are the usual rooms for the justices and witnesses. On the ground floor are the cells and offices for the district inspector and other officers. There is also a private residence for the chief officer, a parade ground, and accommodation for the ambulance.

Masters and Men.

Wages and Hours of Labour in 1901.—The annual report by the Labour Department of the Board of Trade on changes in rates of wages and hours of labour in the United Kingdom in 1902 has been issued. Mr. H. Llewellyn Smith, in his introductory note, mentions that for the first time since 1895 a decline in wages has to be recorded. During the past year about 430,000 workpeople received advances amounting to £41,000 per week, while 493,000 had to submit to decreases amounting to £118,000 per week. The nett weekly decrease for 1901 was thus £77,000, against increases of £209,000 in 1900 and £91,000 in 1899. The decline is accounted for mainly by the fall in miners' wages, the rise in which was the predominant feature of the statistics for the years 1898-1900. The fall in wages in this industry accounted for over 80 per cent. of the total weekly decrease in 1901. A considerable decline also occurred in the metal trades; but in the remaining industries the nett result for the year was a slight increase. It is estimated that, taking into account the various dates at which the changes came into operation, the nett decrease in the wages bill of 1901 due to changes recorded in this report was about £1,584,000. This compares with a nett increase of £6,000,000 in 1900. Mr. Llewellyn Smith remarks on the satisfactory fact that there has been an increased tendency to settle changes by conciliation or arbitration. During 1901 only 2 per cent. of the workpeople whose wages were changed were engaged in disputes on this account. This percentage is the lowest recorded. In the case of three-fourths of the workpeople the changes were arranged by conciliation, arbitration, wages boards, sliding scales and similar machinery. As regards changes of wages the following table shows the average nett increase or decrease per week in the wages of those directly affected:—

Groups of Trades.	Number of workpeople affected.	Nett amount of Increase (+) or Decrease (−) per week in Wages.	
		Total.	Average per head of those affected.
		£	s. d.
Building trades - -	39,637	+ 1,943	+ 0 11
Mining and quarrying -	725,750	− 62,635	− 1 8
Metal, engineering and shipbuilding - -	103,216	− 21,121	− 4 1
Employees of public authorities -	27,628	+ 1,833	+ 1 4

During 1901 only 29,276 workpeople were affected by changes in hours of labour, of which total 586 had their working hours lengthened and 28,690 had them shortened. The nett result was a reduction of 58,728 hours per week, or an average of two per head of those affected. In the following table the changes in 1901 are classified by groups of trades:—

Groups of Trades	Number of workpeople affected.	Aggregate amount of reduction in hours per week.	Nett average reduction in hours per week per head of those affected.
Building trades - -	4,499	3,719	0·83
Mining and quarrying -	1,072	10,377	9·68
Metal, engineering and shipbuilding trades -	1,772	4,002	2·26
Woodworking - -	638	995	1·56
Employees of public authorities - -	874	4,515	5·17

A NEW SCHOOL AT WHITWICK.

NEW Roman Catholic Day Schools at Whitwick are being erected on Parson-Wood Hill, near the Presbytery, at a cost of £5,000. The building will accommodate about 500 children. The buildings are designed on the central-hall plan, and consist of a hall 71ft. by 33ft., with nine classrooms —four on each side of the hall and one at the end—each having accommodation for fifty or sixty scholars. All the classrooms are lighted from the windows to the left-hand of the scholars, and separated from the central hall by movable glazed screens. Separate entrances and cloak-rooms are provided for boys, girls and infants, and private rooms and store closets are set apart for the head teachers.

The Central Hall.

The hall is 30ft. high at the ceiling line, and has six open hammer-beam pitch-pine principals carrying the roof. It is well lighted from each end and the sides, and as this hall can be extended to 90ft. long, it will be convenient for concerts, meetings, &c.

The whole of the floors will be in wood blocks, with the exception of the cloak-rooms, which are to be concrete slabs. All internal walls are to be lined with brown bricks to a height of 4ft. The remainder of the walls, both internally and externally, will be faced with red bricks of local manufacture. The dressings externally are of red terra-cotta and Ancaster stone. All roofs will be covered with green slates, and all ceilings plastered. The schools throughout will be heated by hot water on the low-pressure system, assisted by open fires. Numerous fresh-air inlets are allowed for, also windows to open at ceiling line. The foul air will be extracted by means of exhaust ventilators fixed in the roofs. The boys' and girls' playgrounds, which are spacious, are divided by brick walls. The whole of the works are being carried out by Mr. Walter Moss, builder, of Coalville, under the supervision of and from designs prepared by Messrs. McCarthy & Co., architects, of Coalville.



ROSENBORG: THE KNIGHTS' HALL ON THE SECOND FLOOR, SHOWING CORONATION CHAIRS AND SILVER LIONS.

Keystones.

A New Church at Worcester is to be erected in London Road.

Mr. Carnegie has offered £3,000 to Stourbridge for the erection of a free library on condition that the maximum assessment under the Free Libraries' Act was levied and a site given for the building. The offer has been accepted.

Ghent's New Art Museum.—The Triennial International Art Exhibition in Ghent was opened recently. The exhibition this year has a special importance, for with it is opened the new museum built for the town by the Government and the municipality. The new museum has a pleasant approach through a park. The exterior is simple in detail and proportions, and has a large Classic portico. The interior is well planned. There are twenty-six galleries, five of which are quite large, and a semicircular court now reserved for sculpture. The lighting is good, the decoration quiet and unobtrusive; but the colour of the wall hangings in a few of the rooms is, perhaps, too strong as a background for pictures. Eventually the museum is to be filled with the permanent collections.

At Great Yarmouth Workhouse a new steam laundry has been erected from designs by Mr. A. S. Hewitt, A.R.I.B.A., on a plot of ground on the east side of the main workhouse buildings. It consists entirely of ground-floor rooms. It is approached from and is in direct communication with the long corridor that runs through the workhouse from east to west, and is laid out as follows:—The first room is used as a receiving-room. The walls of the washhouses are lined with Cockrill-Doulton glazed tiles, and all the rooms have open roofs with top-lights and ventilators. The floors of the ironing and delivery rooms are laid with pitch-pine blocks, all the other floors being of concrete. Mr. J. D. Harman was the principal contractor, Mr. Grimble being the sub-contractor for carpentering and Mr. Gooda for the plumbing work. The entire building will be lighted by electricity. The cost of the building is about £1,700, and the machinery £850.

A New Drill Hall at Uxbridge has been erected on the private road leading to Uxbridge Vicarage. It extends 125ft., while its width, including the side walls, is 47ft. 4in. It is built of stock bricks with red facings. The hall floor is loose gravel, this being considered most suitable as a marching surface. The height of the walls at the spring of the roof is 14ft., to which about another 6ft. must be added for the centre of the gable. Rendle's "Invincible" glazing running on both sides the roof for the length of the actual hall gives daylight to the place effectively, while as to artificial light it is on the circuit of the Uxbridge and District Electric Supply Co. The fittings descend from the purlins of the hall roof and are also fixed in the more strictly official quarters and in the instructor's private dwelling. In the centre the iron-work is so supplemented and strengthened by cross-bars that when wanted this part of the hall can be turned into a gymnasium. Two emergency exits are provided on the right side of the hall; these are closed by sliding doors having Coburn's patent roller appliances. There are an officers' room, an armoury room, a recreation-room and a sergeant's room, and instructor's sitting-room, kitchen, scullery, pantry, coal-place, &c., three bedrooms and lavatories. The contractor was Mr. C. F. Kearley, of 11, High Street, Uxbridge, and of Kensington, and the architects were Messrs. Rawlence & Squarey, of Great George Street, Westminster.

Sir Campbell Clarke died recently. The deceased gentleman was educated at Bonn, and was for eighteen years sub-librarian to the British Museum. In 1870 he became Paris correspondent to the "Daily Telegraph." His knowledge of art was very considerable.

The Madeleine in Danger.—The city of Paris architects have decided that, as a measure of public safety, the cornices and chapters of the church of the Madeleine shall be examined in detail. To facilitate the work of inspection a special scaffold is to be built, which can be moved from place to place with the architects and inspectors from the Ministry of Finance. This preliminary scaffold will cost no less than £1,600.

International Exhibition of Architecture and Industrial Arts at Moscow.—According to the French "Moniteur Officiel du Commerce," an exhibition of models of the modern style of architecture and industrial art will be held in Moscow from November next to March, 1903. The exhibition will comprise:—(a) Plans and designs in architecture and industrial art, (b) photographs of buildings and interior decorations, (c) paintings and decorative sculptures, (d) furniture, bronzes, tapestries, upholsterings, mosaics, embroideries, jewellery, &c. Copies reproducing the original in a changed form will be refused.

The New Fire Station at Coventry is practically finished. The accommodation on the down floor consists of main engine-house for the reception of the fire appliances, a covered yard, stabling for six horses, repairing shop, provender store, loose box, coal stores, and watch-room, wherein will be situated the electrical appliances. Upstairs is a recreation-room for the fire brigade, committee-room, bathroom, &c. Adjacent to the main building are three cottages, which will be occupied by the engineer of the brigade and the horse drivers. By this arrangement there will always be three permanent tenants on the spot. There is also a tower 70ft. high for the drying of hose. It has been built by Messrs. John Isaac & Sons, of Great Heath, Foleshill, from plans prepared by the city engineer and surveyor (Mr. J. E. Swindlehurst). The cost of the works will amount to about £6,000.

A New Sessions Hall at Lytham has been erected at a cost of about £7,000. The frontage is 66ft. in length, and the rear extends for a distance of 128ft. The building is surmounted by an octagon tower with a massive dome. There is living accommodation for an inspector, a sergeant, a married constable and six single officers. There are four cells. They are fitted with the latest improvements, lined with white enamel bricks and heated with hot-water pipes. The roof is Gothic in style, worked out in plaster. There are two leaded top-lights each 12ft. by 7ft. The floor is set with pitch-pine wood blocks on a foundation of concrete. The dock, which is a very massive piece of furniture, is situated in the centre of the court immediately behind the solicitors' bench, and is accessible from the cells below by a spiral stone staircase. The bench will accommodate fifteen magistrates sitting in double row. The magistrates enter the court from the front, and a side entrance is provided for the public. The court-room is estimated to accommodate about 200 persons. Mr. Henry Littler, architect to the Lancashire police authority, prepared the plans, and the contract for building was secured by Mr. H. Mogridge. Mr. J. Walmsley, of Preston, executed the joinery work; Mr. Forshaw, of Lytham, the plastering; Mr. J. Coulston, Blackpool, the painting; Messrs. Seward, of Lancaster, the heating apparatus and ventilation; and Messrs. Butterworth & Son, Blackpool, carried out the stonework. Mr. G. Neal, of Preston, acted as clerk of works.

Ripon Cathedral Reredos.—Mr. G. F. Bodley, R.A., has advised the committee formed to promote the erection of a permanent reredos at the east end of Ripon Cathedral that a carved stone reredos would be more suitable than one of wood, as the latter would require much gilding and colour to make it effective. He suggested that the altar be brought 6ft. (half a bay) westward. It was resolved the reredos should take the form of a memorial to the men of the diocese who have fallen in South Africa.

A New Primitive Methodist Church at Swalwell is being erected in Napier Road. The new structure will be of Sherburn bricks, with stone facings, and will accommodate 280 worshippers. The cost, including land, &c., is estimated at about £1,000. The building consists of chapel and a large vestry, while provision has been made for the erection of a schoolroom in the future. The internal fittings will be of varnished pine. The vestry is to be divided from the main buildings by a patent movable partition. The contractors for the work are Messrs. Shield Brothers, Swalwell, the architect being Mr. T. E. Davidson, of Newcastle.

A New Public Library at Trecynon, Aberdare, is being erected at an estimated cost of £2,000. Towards this sum Mr. Carnegie contributes £1,500, the directors of the Bwllfa Colliery Company £105, and Mr. Edward Arnott £100. Mr. D. A. Thomas, M.P., at the foundation-stone laying ceremony said he had tried to obtain similar gifts from Mr. Carnegie for the towns of Merthyr and Aberdare, but had as yet not been successful, although Mr. Carnegie had promised £1,000 for Aberaman and £700 each for Hirwain, Abercynon, Penrhiwceiber and Ynysybwl. Mr. Carnegie stipulates here, as in other cases, that the maximum assessment under the Free Libraries Act shall be levied, and that sites shall be provided free of charge.

NEW GOVERNMENT OFFICES.

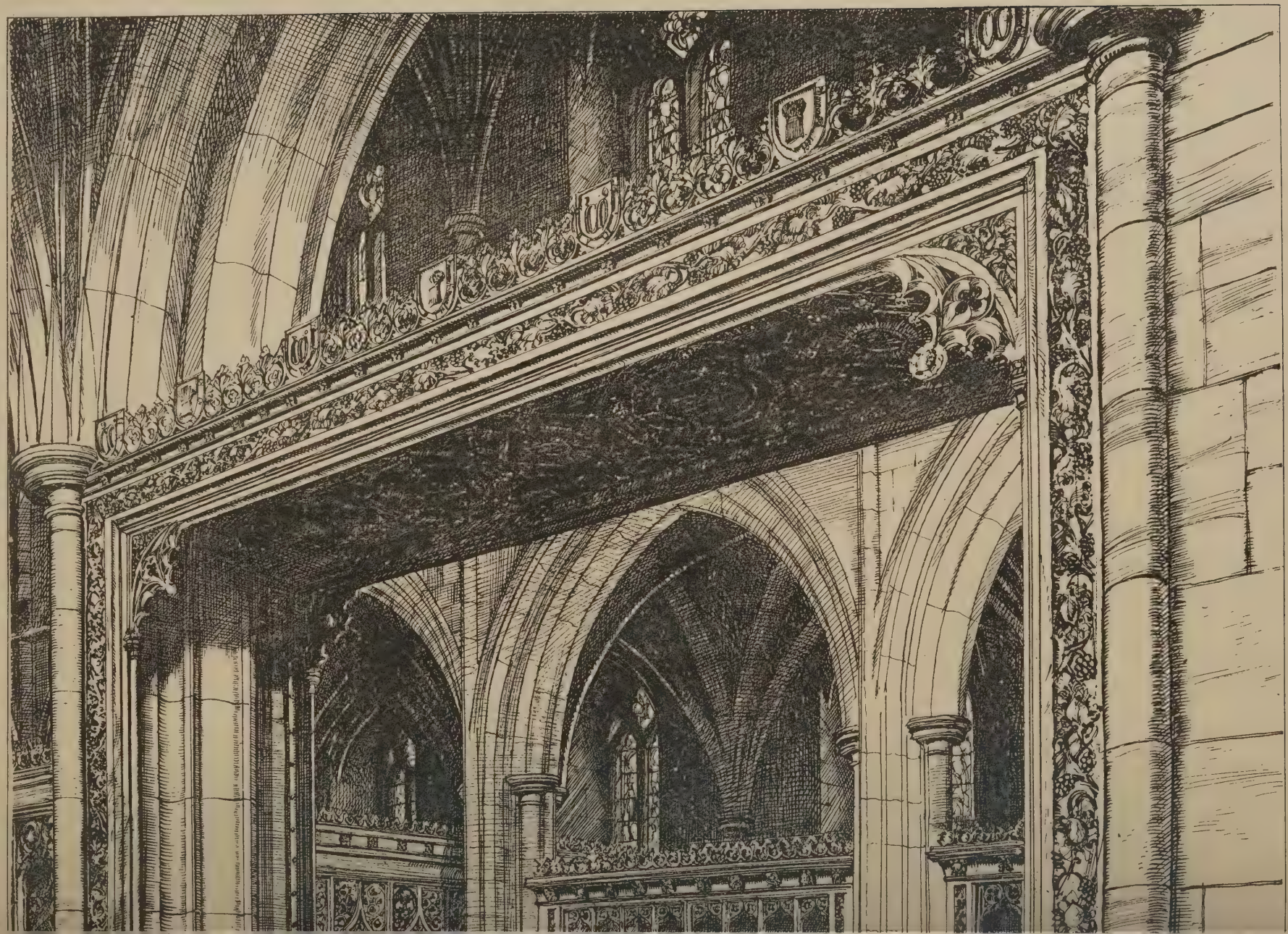
A Last Effort by Mr. Leonard Stokes.

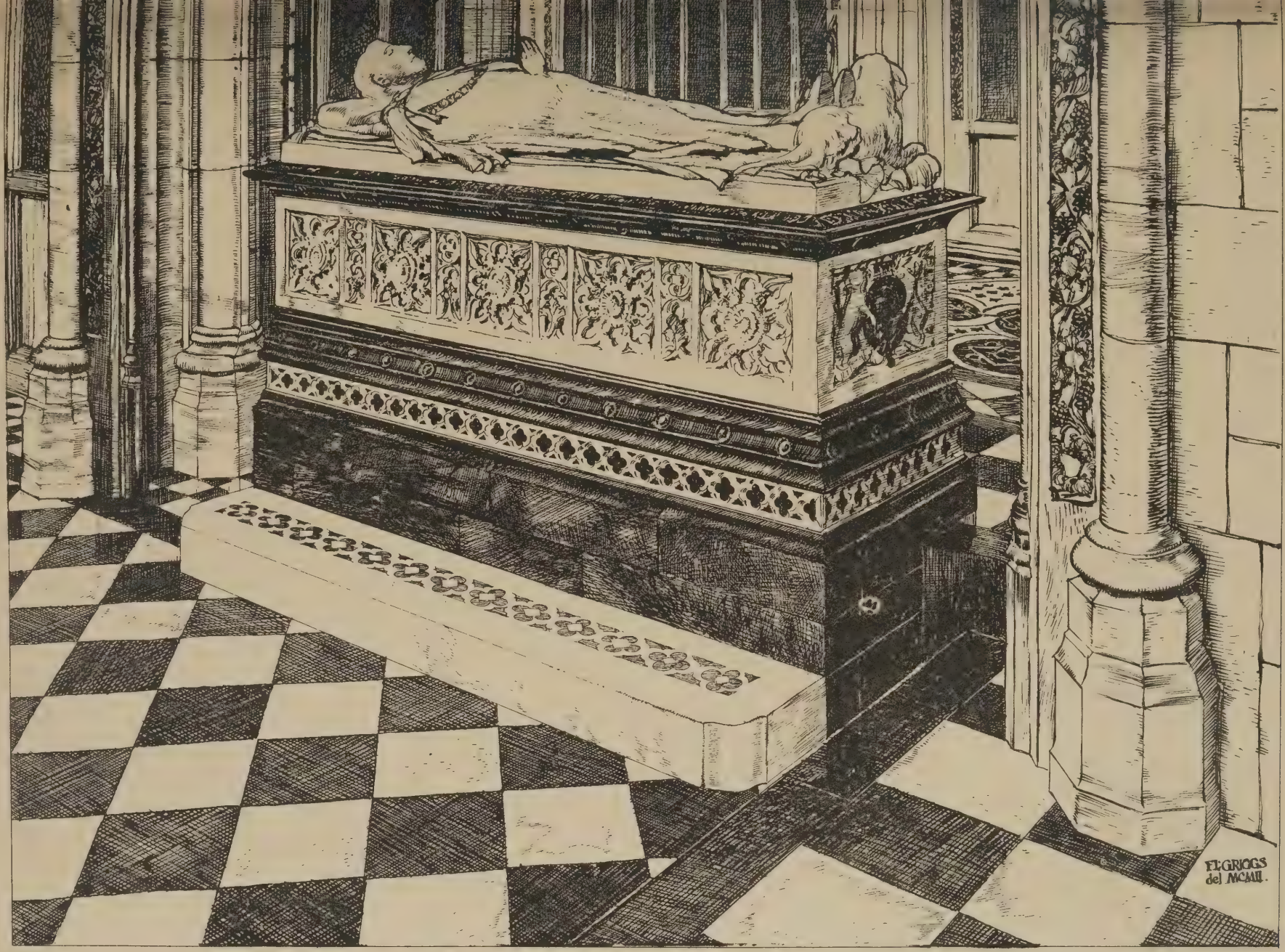
WRITING in reference to the recent discussion in the House of Commons with regard to the New Government Offices now being erected in Whitehall (see our issue for August 6th) Mr. Leonard Stokes, F.R.I.B.A., says:—

The House was told how an Advisory Committee had signed the drawings handed over to the Office of Works, and how Brydon's chief assistant had been engaged, &c., &c.; but Mr. Akers-Douglas must know perfectly well that although all this sounds very well, in the House, it really means very little; why did he not tell the House that his very Advisory Committee, to whom he pledged himself to refer all matters of detail, is against him on the board principle of the Office of Works having to complete the building at all? Why did he not tell the House that the gentleman who was Brydon's chief assistant is now quite a subordinate at the Office of Works? And last, but not least, why did he not make it clear that no full-size details were made by Brydon at all (with two trivial exceptions), and that it is just upon these very details, made full-size, that the whole life and soul of the building depends? He might have told the House all this and more, for he must know that a department has neither life nor soul, and therefore cannot impart it to anything; or if he does not know it, his successor knows it, and therefore even though the whole thing looks hopeless—and flogging a dead horse is proverbially useless—one more effort to save Brydon's building—or, at any rate, the exterior of it—might well be made under the altered circumstances of the case.

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Supplement to
THE BUILDERS' JOURNAL AND ARCHITECTURAL RECORD,
Wednesday, September 3rd, 1902.





"PHOTO-LITHO." R. J. EVERETT & SONS, 56 LUDGATE HILL, E.C

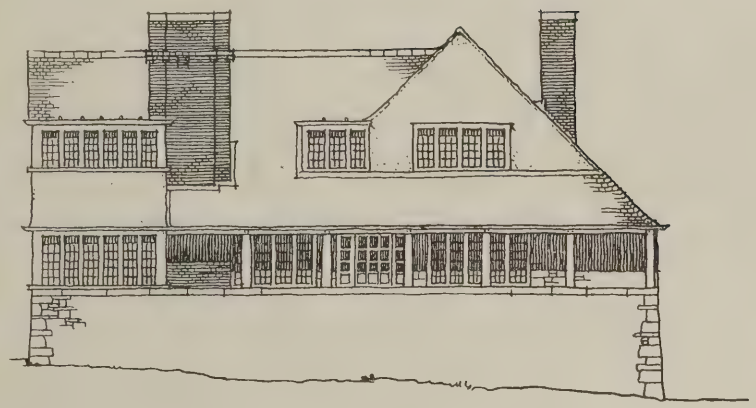
MONUMENT TO THE LATE DUKE OF WESTMINSTER, ECCLESTON CHURCH.

G. F. Bodley, R.A., Architect.

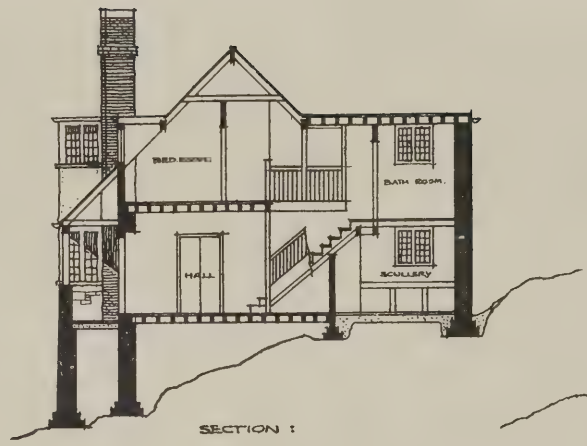
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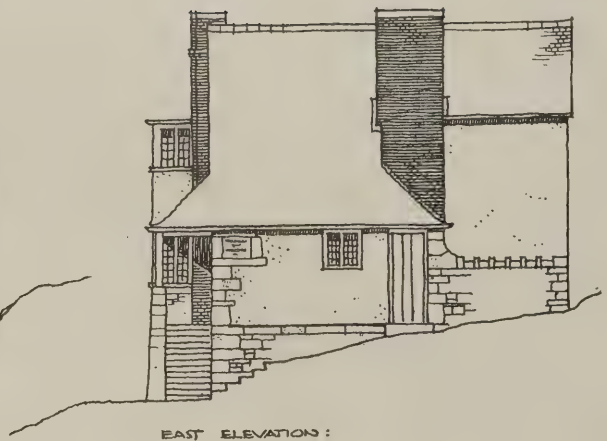
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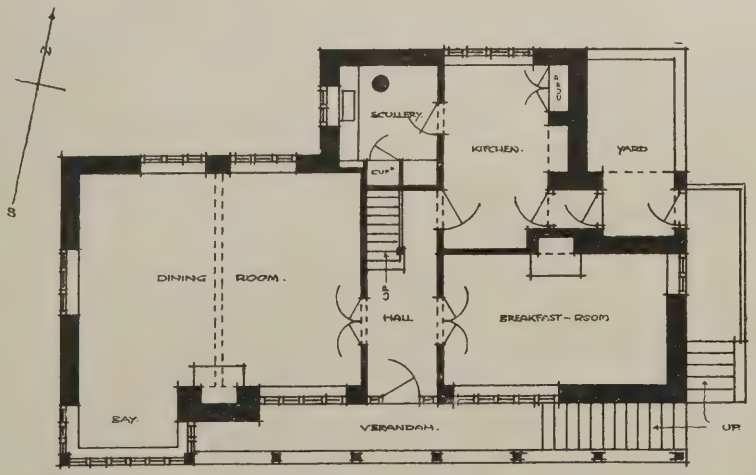
SOUTH ELEVATION :



SECTION :



EAST ELEVATION :

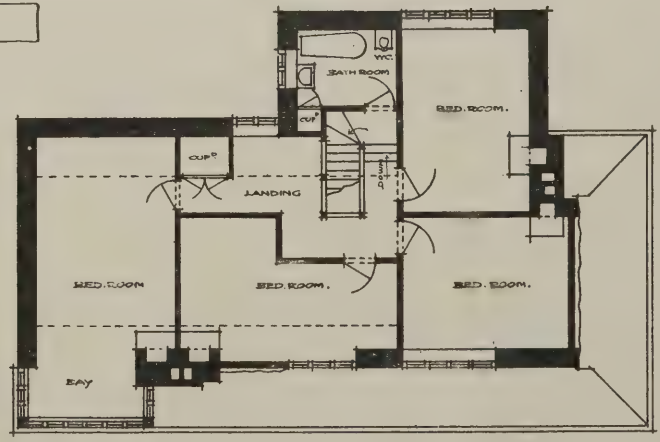


GROUND PLAN :

HOUSE NEAR LLANDUDNO :
FOR MESSRS YOUNG & JONES :

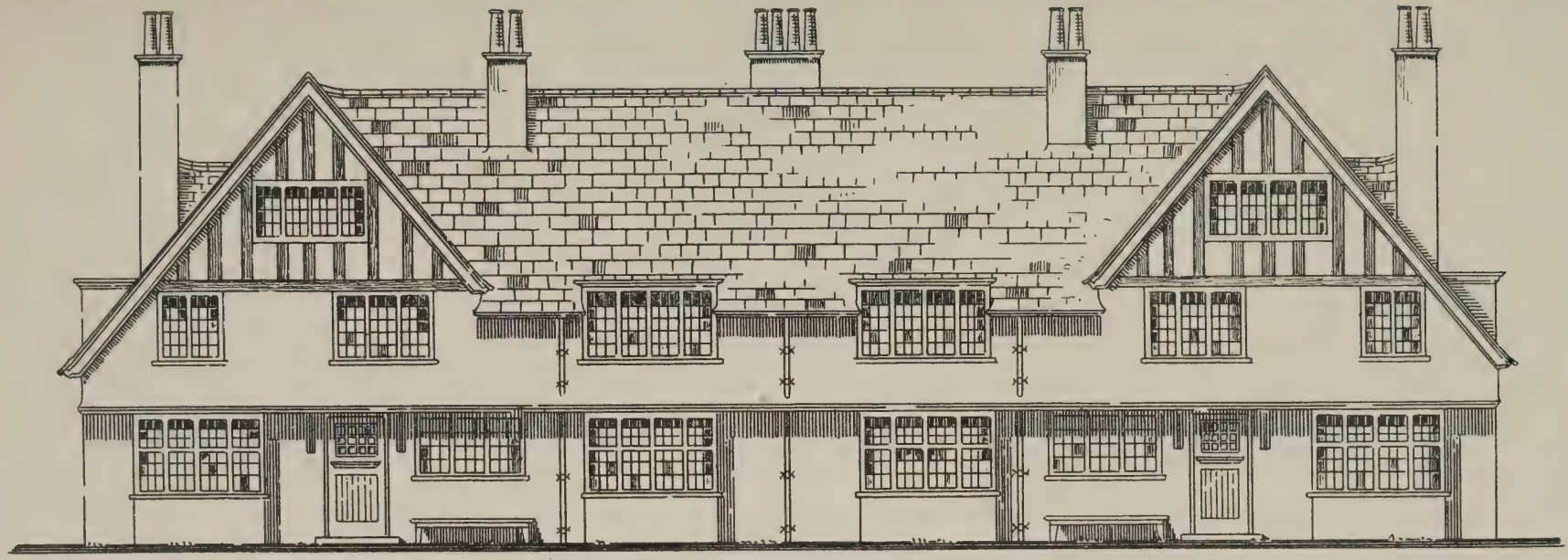
D. F. CREBEN
ARCHITECT :
3 ACRESFIELD
BOLTON :

SCALE OF FEET 1

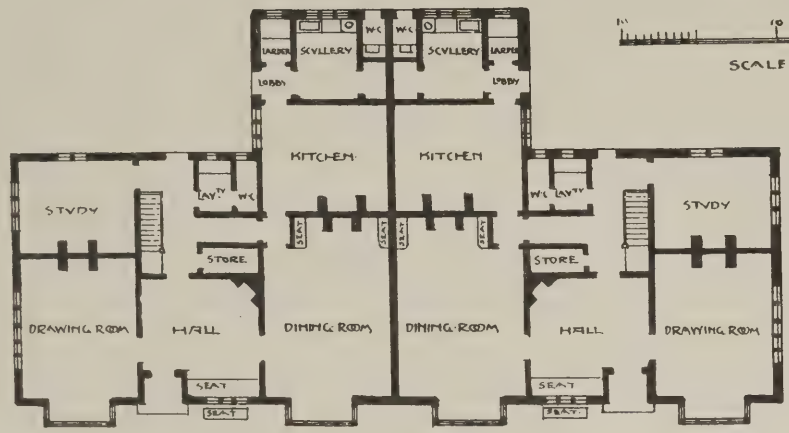


UPPER PLAN :

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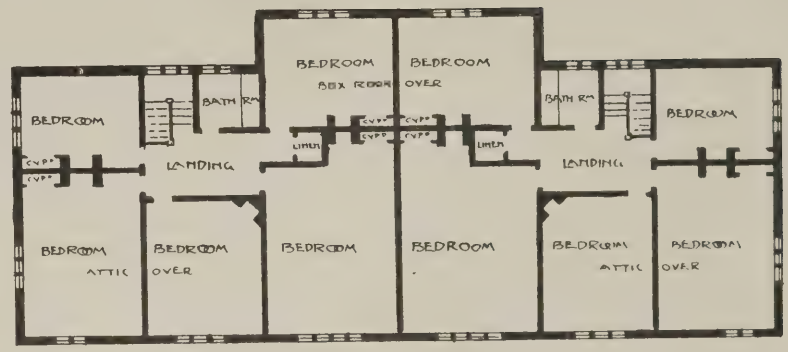


FRONT ELEVATION



GROUND PLAN





FIRST FLOOR PLAN.

DESIGN FOR A PAIR OF SMALL COUNTRY HOUSES. F. E. RAVENSCROFT, ARCHITECT.

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Builders' Notes.

A Red Stone Combine, we are informed, is on foot. The quarry owners have met several times, usually in Carlisle, and an announcement may be expected at any moment.

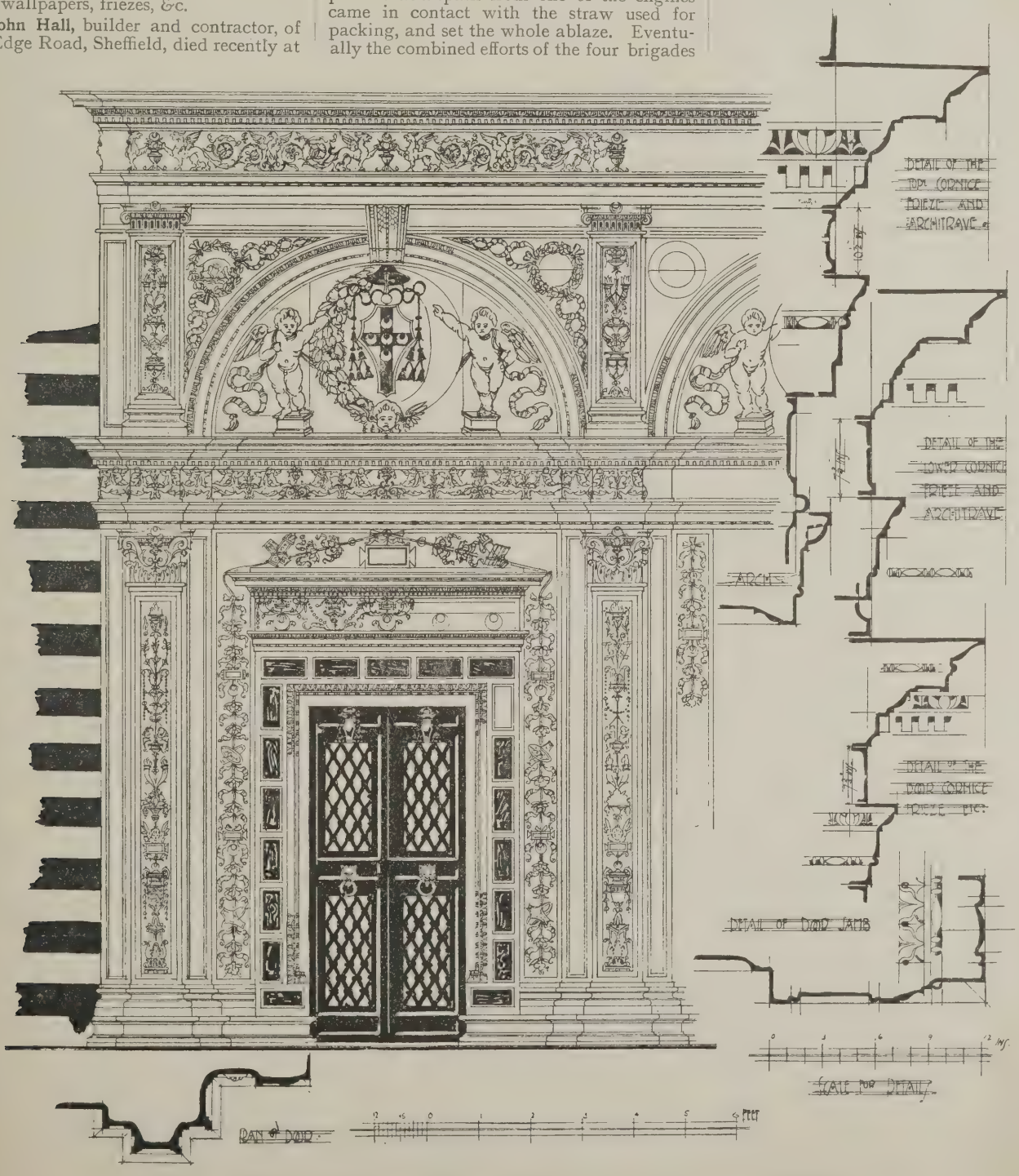
During the Shah's recent visit to London he favoured Messrs. Ewart & Son, Ltd., 346, Euston Road, N.W., with an order for one of their well-known "Success" oil geysers, to be shipped to H.I. Majesty's palace at Teheran.

Messrs. James Willats & Son, of Gray's Inn Road, Holborn, W.C., builders and decorators, plumbers, electrical gas lighting, hot water and sanitary engineers, have opened additional premises at 29, Gillingham Street, Belgravia, S.W., for the convenience of their numerous customers in the W. and S.W. districts. The new showrooms have a large assortment of electrical, gas and hot-water fittings, sanitary appliances, &c., and a special feature is the stock of patterns of 1903 season's wallpapers, friezes, &c.

Mr. John Hall, builder and contractor, of Nether Edge Road, Sheffield, died recently at the age of sixty-six years. Deceased carried on business in John Street, Sheffield, under the name of John Morton, and it was by that name that he was generally known. During his long business career he built many large premises, the Anchor Brewery, recent additions to Richdale's Brewery and several hotels being among his works. It was he who erected the Monolith. He was one of the best-known builders in the district.

Fire at a Tile Factory.—The most disastrous fire that has occurred in the district of Swadlincote for many years broke out last Saturday week on the premises of Mansfield Brothers, Church Gresley, and destroyed the whole of one of the main portions of their encaustic tile factory. The factory adjoins the Midland Railways, and has warehouses opposite the elevated branch line to Woodville. Parallel, and within some yards, stood the hay and straw shed, with the warehouse on one side and the stables on the other. Exposed to passing locomotives, it is supposed that a spark from one of the engines came in contact with the straw used for packing, and set the whole ablaze. Eventually the combined efforts of the four brigades got the fire under, but not before the whole of the hay and straw, including the building, was destroyed and considerable damage had been done to the warehouses and stock, which is insured.

Doorway in Siena Cathedral.—The door to the library of the cathedral of Siena—formerly the Sala Piccolominea, erected in the fifteenth-century by the order of Cardinal Piccolominea, afterwards Pope Pius III.—forms a pleasant break in the somewhat monotonous lines of black and white marble of which the cathedral is built, and is famous for the fine execution of the carving by the Brothers Massini. The door is built of white marble, and with its strong projections forms an admirable study in light and shade, while some delightful spots of colour are introduced by means of the panels on the broad architrave of the door, in various coloured marbles, while the shields, bishop's hat and tassels, &c., are all blazoned in heraldic tinctures.



SIENA CATHEDRAL: DOOR TO LIBRARY. MEASURED AND DRAWN BY J. FORBES-SMITH.

Enquiries Answered.

The services of a large staff of experts are at the disposal of readers who require information on architectural, constructional or legal matters. Questions should in all cases be addressed to the Editor. The querist's name and address must always be given, not necessarily for publication.

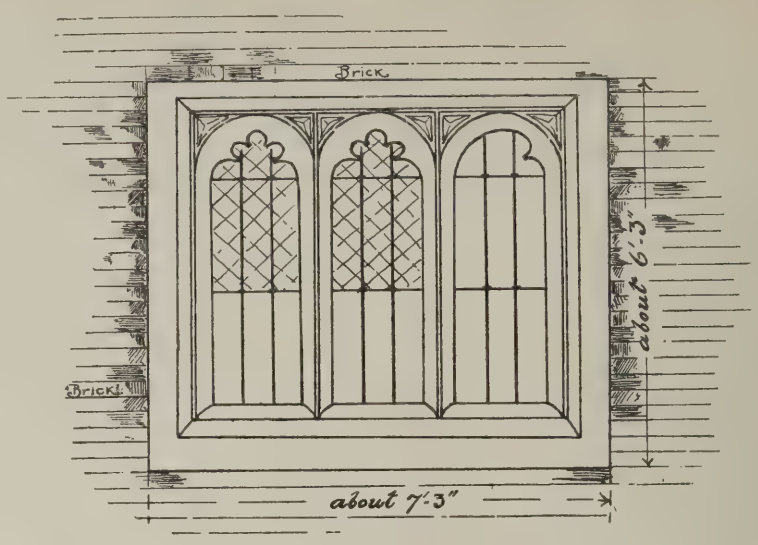
Strength of Wall carrying Girders.

LONDON, S.W.—E. E. B. writes: "The load per ft. run on a 14in. wall 30ft. in length, height of storey 12ft., is about 1 ton per ft. super.; how much extra bearing power will be left to resist a load concentrated at a given point—taking into consideration that the bearing increases in area downwards at the rate of about 60 degs. on each side of the load along the length of 'the wall'? I send a sketch (not reproduced) showing the way I am carrying this out in practice. The load on the wall due to weight carried by girder is 20 tons. The girder rests on a hard York stone template 10in. wide, and below this are seven courses in Staffordshire blue bricks in cement in regular offsets, calculated to carry over 20 tons at the first course, and distributing the pressure so that the 3ft. 6in. wall below, built in Flettons in lime mortar (1 to 2 grey lime), has only 6 tons pressure per ft. super. I have an idea that the Staffordshire blue brick might with safety be omitted, and that by omitting them there would be less risk of an even settlement in the wall. I should think that the resistance of ten courses below a template supporting a girder might be taken at $\frac{1}{10}$th the crushing weight of the brick itself, provided the ten courses were built in cement-mortar. Below the sixth to the tenth course the load will be spread over an area sufficient to support the load. I believe no tests have yet been made on piers of pyramidal shape, which, I take it, correspond with the actual shape which supports the end of a girder bearing upon a long wall. I assume brickwork will safely carry the following loads per ft. super.:—

	Piers in lime mortar 1 to 2.	Walls in lime mortar 1 to 2.	Piers in cement mortar 1 to 4.	Walls in cement mortar 1 to 4.
Stocks - - -	2 tons	4 tons	3 tons	8 tons
Flettons - - -	—	6 tons	—	11 tons
Staffordshire blue bricks - - -	12 tons	—	20 tons	—
Firk stone - -	—	—	24 tons	—

A York stone template will be sufficiently loaded at 12 tons per ft. super., but in this case the bearing surface of girder is only about 14in. by 6in. with a load of 20 tons, giving an intensity of $\frac{20 \times 144}{14 \times 6} = 34\frac{1}{2}$ tons per ft. super. As the wall is only 14in. thick it will be necessary to spread the bearing of the girder flange by means of a thick wrought-iron plate or a cast-iron shoe, say 14in. by 18in., when the pressure on the template will be, say, $11\frac{1}{2}$ tons per sq. ft. Below the template there will be no particular advantage in using Staffordshire blue bricks as shown, although the theory of doing so is correct. It will be better to extend the stone template to allow the general walling bricks to be used throughout, say Flettons, which are safe at 6 tons per sq. ft. when laid in cement. The length of the stone template would be $\frac{20 \times 144}{14 \times 6} = 34\frac{1}{2}$in., say 3ft., and the thickness should not be less than, say, 9in. If a vertical strip of the wall 1ft. run be taken as a column, by Gordon's formula it should carry safely about 4 tons per ft. super., including its own weight, so that there will be a good margin for taking a concentrated load, but this latter will produce more than 4 tons per ft. super.; in fact, with the distributed load they will together produce on the underside of the template a load of 8 tons per sq. ft. It is evident that a pier should be built under the end of the girder, and the iron shoe can then be dispensed with. The writer does not know of any tests of pyramidal brick piers, but he would make the area of the top according to the load on it and the bottom according to the supporting material.

HENRY ADAMS.



WEST WINDOW IN TOWER, MORDEN CHURCH, SURREY
MEASURED AND DRAWN BY A. J. CLIFFORD EWEN.

Architects' Assistants' Club.

LONDON.—SPES writes: "I am a young architectural draughtsman from Scotland, and I should like to know if there is a Scottish architects' assistants' club in London."

There is no such club; but most provincial students when they come to London join the Architectural Association. Probably "Spes" had better do the same. G. A. T. M.

Books on Quantities; and the National Competition.

TORQUAY.—C. E. writes: "What book on quantities do you recommend for a beginner? Would a design for a clock-tower be suitable for the National Competition (architectural section), or should I have to choose something on a higher scale, such as a town hall or market hall? Should I have to pass a preliminary examination in architecture before I entered for the National Competition?"

Davis's "Quantity Surveying" (D Fourdrinier, 46, Catherine Street, Strand, W.C.) is the best for an absolute beginner, but Leaning's work is much more thorough, and should soon be purchased and constantly referred to. Any student in an art or science school under the Education Department may enter for the National Competition. A clock tower would be a suitable subject for a design; but to obtain recognition it should be an imposing structure, suitable for an open space in a great city. G. A. T. M.

Defective Bath Stone.

CAMBERLEY.—"Can I rightly condemn some Bath-stone window heads that have flint veins in them running from top to bottom? The specification says merely that the stone must be free from all defects, but does not specify what defects."

The terms of the specification clause are not definite enough to condemn the stone.

Cost of Porches.

HOLMFIRTH.—L. H. writes: "Kindly give an estimate of cost of a strong porch for a house greatly exposed to the weather. Size, 6ft. by 4ft. and 9ft. high, the material to be of stone; window on each side. Please compare such a porch with one of iron frame and glass."

A stone porch such as you mention would cost about £30 or £40, and an iron and glass one about £25 or £30. To give an exact estimate we should require much more information, and we advise you to consult a local architect.

Architects' Assistants Abroad.

LUTON.—ARCHITECT'S ASSISTANT writes: "Is it possible for me to get a situation in an architect's office in France or Italy? Which is the better country of the two for an architectural student to visit; and would the experience gained in two or three years greatly benefit me?"

An English architect's assistant is not likely to obtain a situation in French or Italian architects' offices without influence, though he stands a better chance in Italy. The latter country of course takes first rank for architectural monuments, but you should endeavour to visit France as well. We advise you to spend two years in Italy and a year in France.

Correspondence.

Ocean Buildings, Moorgate Street, E.C.

To the Editor of THE BUILDERS' JOURNAL.

LONDON, W.

SIR,—You will doubtless be glad to know that this building (illustrated on p. 2 of your issue for August 20th) was designed by Messrs. Kidner & Berry, of 23, Old Broad Street, E.C., and that the design was exhibited at the Royal Academy last year. Further, I have good reason for knowing that it was not influenced by Mr. Huntly-Gordon, as suggested by the writer of the article on "Recent Street Architecture in London." — Yours truly, ALBERT GRAY.

The Tower of Morden Church, Surrey, is unique because of the method by which an accident to the cusping has apparently been doctored. It is probable that either at the time of building or at some later date the cusps of the right-hand light broke away, owing to the softness of the stone used, and not being able to replace the whole head the builder rounded off the broken stone, leaving just the one odd cusp, which gives the window so curious an effect. The above sketch by Mr. A. J. Clifford Ewen is shown approximately correct to scale.

Bricks and Mortar.

Aphorism for the Week.

There is not a member, however minute it be, in Gothic architecture, at the epoch when it passed into the hands of the lay-workers, which is not prescribed by a constructive necessity.

VIOLLET-LE-DUC.

Our Plates. THE house near Llandudno is to be built on the woody slopes of a hill at Esgyryn, and will have an expansive view of the Conway Valley and of the mountains beyond. It is to be built of stone, the materials of the two cottages which previously existed on the site being utilized, and the external walls where exposed to the weather will be rendered weather-tight by cement rough-cast brought down to a tile creasing belowthe damp-course. The roof will be covered with red tiles, and the chimneys will be built of red bricks. The architect is Mr. D. F. Green, of Bolton.—With regard to the design for a pair of small country houses by Mr. F. E. Ravenscroft, all external walls are proposed to be 9in. thick, of bricks, rough-casted right down to the ground. The chimneys also are to be covered with rough-cast. There is a scarcity of light in the dining-room, which in actual working out Mr. Ravenscroft would improve by making the bay windows wider and getting another light in. The whole of the window frames would be in wood, painted pale Brunswick green, which colour also applies to the doors, eaves, stackpipes, &c. The half-timber work would be solid and of creosoted timber as used for railway sleepers. The roof would be of plain red tiles with half-round ridge tiles. There are five bedrooms and a bathroom on the first floor of each house, and an attic and box-room on the second floor of each house. A rough estimate of the cost of the pair would be £2,500. The design was exhibited in this year's Academy.—The drawing of the monument to the late Duke of Westminster in Eccleston Church, also exhibited in the Academy, is a very admirable piece of work by Mr. F. L. Griggs. The monument itself, carried out in black and white marble, is singularly well placed and in keeping with its surroundings.



BUILDINGS IN COURSE OF ERECTION FOR THE GLASGOW AND WEST OF SCOTLAND TECHNICAL COLLEGE. DAVID BARCLAY, F.R.I.B.A., ARCHITECT.

Glasgow Technical College. THE calendar for 1902-03 of the Glasgow and West of Scotland Technical College gives the full curriculum of this very extensive institution, together with the several examination papers of the past session. As a frontispiece the book has the accompanying illustration showing the buildings now in course of erection for the college, of which Mr. David Barclay is the architect. Some particulars of these buildings were given on p. 349 of our issue for July 16th last. The statistics for the past session show that the total number of students attending the college was 5,651, of whom 758 attending the evening classes were architects, measurers and others connected with the building trades.

St. Mark's Campanile. APROPOS of Sir Edwin Durning-Lawrence's proposal, referred to on p. 424 of our issue for August 14th, Mr. Alfred H. Powell writes: "I should like to ask, in the interests of old buildings and their proper mending, how such a scheme as he proposes could be efficiently carried out. He speaks of drilling holes 4in. in diameter (length not given, but presumably of any length from 3ft. to 10ft. according to the thickness of the wall to be treated) 'into the masonry' or brickwork, and then of 'pumping in' Portland-cement grout into the holes so made. It would be interesting to know (1) what he means by drilling—whether any gentler process than hammering a chisel; (2) what kind of pump he would use for so rapidly cloying a material as cement grout; (3) how an old building would 'take' the drilling of fifteen or twenty holes per diem, say 6ft. deep, into walls in which serious cracks had already developed in the same direction? Supposing each hole took two hours to 'drill'—and, as Sir Edwin estimates, there were 10,000 needed, 3ft. apart in an old and perhaps loose wall—then there would have been, in the case of the Campanile, 20,000 hours on end of jarring the old work in sets of from thirty to forty hours a day; the second hole being always begun, apparently, before the first had set, throughout the work. Apart from the very severe treatment involved, the method has the disadvantage of being work in the dark. There is a well-known better way, which admits of real building, and not, if I may say so, of tinkering with that much-abused material, Portland cement. Bell towers generally split at right angles to the wall faces and require tying, not perforation."

Winchelsea Churches. THE old parish church of Winchelsea is to be renovated. As it at present stands it is a curious relic of a church that originally must have been of cathedral-like proportions. The existing portions are the choir and chancel and remains of the transepts. The arches at the west end of the choir which originally opened into the transepts have been filled in. The choir is 56ft. in length by 28ft. in width; the chancel is 14ft. in length, and of the same width as the choir. North and south are the choir aisles, which formerly were known as the Lady Chapel and St. Nicholas Chapel. Of the nave every trace has disappeared, even the foundations having been cleared out, with the exception of the bases of the central piers, and used to repair Rye Harbour. The ruins of the transepts are most picturesque, and it is to be hoped that they will not be interfered with. Another very interesting feature is the flying buttress outside the south choir aisle. There are several fine old monuments in the interior. An appeal is now being made for £7,000 to complete the renovation of the available remains under the supervision of Mr. Micklethwaite and Mr. Somers Clarke. Besides the parish church, which is dedicated to St. Thomas-à-Becket, Winchelsea rejoiced in a number of churches and oratories of which only the slenderest remains can be found. One of these was the church of St. Giles, which disappeared in the sixteenth century. There was a church dedicated to St. Leonard at the north-west of Winchelsea. It contained an image of the patron saint, which was supposed to have a great influence in securing favourable winds. The old town was finally overwhelmed by floods in 1287, and in the year following the erection of the parish church was commenced on the new site on a hill three miles distant from the low flat island where old Winchelsea stood. The Friars Minors, too, began to move their buildings, and obtained one of the best sites in the new town. The picturesque ruins of their chapel may still be seen on private property. In the year 1318 the Black Friars established a church and monastery on a site of 12 acres, granted by King Edward II., but later they moved to a position near St. Giles's Church. Some old walls and spacious vaults are the only remains of the once commodious house and oratory. At the junction of the roads to Icklesham and Pett may be seen a gable end of one of the buildings of the Hospital of St. John. Of the Hospital of St. Bartholomew no traces remain. It is interesting to note that when the site for the new town was decided on in 1288 it was "laid out" in thirty-nine "quarters" or squares, some of which are still indicated. In less than half a century a great part of the new town was destroyed in the French invasions.

Art Teachers. MR. CARTLIDGE'S general report on Art Instruction in 1901, which forms a part of the Blue Book of Educational Reports just issued, contains a thoughtful passage on the relation of the teachers to art education. "The

teacher's force," he says, "is the force which makes or mars the school. It is, therefore, necessary that every effort should be made to attract the best men and women to the work of teaching, to make their position an honourable one, and to secure as far as possible their happiness in the conditions of their work. Teachers need encouragement and every reasonable facility for keeping up their own studies. Their efficiency would be enhanced by opportunities of literary culture, and of visits to foreign countries to see the schools, the galleries and the life of other nations. And, more than all, they should be led to the conviction that the importance of their work is generally appreciated in their own country, and that their patient and devoted service, in face of the inevitable difficulties which beset it, is realised and valued by those placed in authority over them. The general lack of enlightenment as to the real meaning of art education, and the difference between that and the teaching of drawing, often makes their task an irksome one. At present, unfortunately, the art teacher in many localities often has to submit to the dictum of such people who do not understand that it takes years of training and practice for the eye to acquire the power to see the true pitch of a shadow, the exact degree of a hue of colour, the full beauty of a sinuous line or the true harmony of a composition. Still less do they appear able to understand that the knowledge of right methods of imparting instruction in these accomplishments in art education is only to be gained after years of strenuous study. Realising that we are supposed to live in a cultured age, it seems hard to understand that in the field of education art has not yet taken its merited and natural position. The demands upon art industry are rapidly growing. Good art is no longer the exclusive possession of the wealthy. It need not in these days be inordinately costly, and as the means of production become more perfect and cheaper the demand will grow and will have to be met. And it will need all the efforts of the art teachers of the country to keep peace with the demand, by imparting a sound and up-to-date education."



ST. AIDAN'S VICARAGE LEEDS. BEDFORD AND KITSON, ARCHITECTS.

Old Buildings at Ayr. The executors of the Ayrshire and Galloway Archæological Association have, on the representations of the hon. secretary, Mr. D. W. Shaw, solicitor, Ayr, given a grant of £5 to defray the cost of further exploration in connection with the old buildings found buried in the sand in the ramparts of the Fort, Ayr. Apart from the operations to be carried out with the above sum, and which will be carried out under the superintendence of Mr. J. A. Morris, F.S.A. Scot., architect, Ayr, some further excavation has been made by the feuar, Mr. James Clark. One of the cellar-like apartments has been quite cleared out to the foundations of the four walls. The walls all round have been found to be resting on the sand, and there is no scarcement at the foundation. The approximate dimensions are 7ft. 11in. wide one way, 6ft. 4in. wide the other way, and 5ft. 5in. in height from the foundation to the spring of the arch. The arch, which has a rise of only about 5in., and is slightly over 4ft. wide at right angles to its rise, springs from the walls, which are 6ft. 4in. wide. The width of the stairs leading down to the apartment is 2ft. 2½in. The other apartment has not yet been cleared out, but, so far as can be gathered from what has been revealed, the two apartments are identical in size and construction. The stone of which they are built is a coarse white sandstone of the same character as that of which the "Auld brig" has been built, and very different from the material of which the Fort itself is built. Judging from present appearances, the building seems limited to these two apartments, although further excavation may disclose more building. In the meantime there is not much evidence that what has been unearthed ever formed any part of the old castle of Ayr. It is more suggestive of having been used as a magazine in connection with the Fort when it was occupied under Cromwell.

Surveying & Sanitation.

The Sanitary Institute holds a congress at Manchester from September 9th to 13th inclusive. There are three sections :—(1) Sanitary Science and Preventive Medicine; (2) Engineering and Architecture, and (3) Chemistry, Physics and Biology. Conferences will be held of municipal representatives, port sanitary authorities, medical officers of health, engineers and surveyors to county and other sanitary authorities, veterinary inspectors, sanitary inspectors, ladies on hygiene, and on the hygiene of school life. In connection with the congress an exhibition of apparatus and appliances relating to health and of domestic use will be held.

New Patents.

The following specifications were published on Thursday last, and are open to opposition until October 13th next. The names in italics are those of communicators of inventions. A summary of the more important of them will be given next week.

1901.—15,666, Hollick, cranes, hoisting apparatus and the like. 15,772, Hall, machinery for making slabs, plaster, cement, &c. 15,856, Kelsey, apparatus for making glue. 16,054, Gruner, flushing cisterns. 16,159, Vanes, latches. 17,507, Scott-Snell, pressure system for incandescent gas lighting 17,874, Cooper, alarm fasteners for doors and windows. 17,886, Boult (*Devise Frères*), pressing mould for artificial stone blocks. 19,143, Wakefield, sewage carriers. 19,524, Sissons, steam pile-driving machinery. 19,735, Parks & Brown, roofing tiles. 19,889, Bell, paving of streets. 21,856, Thompson (*Maschinenbau A. G. vorm. Beck & Henkel*), process for treating the substances deposited from sewage water. 22,601, Rigby, maturing Portland cement.

1902.—1,965, Jeffery, folding partitions. 12,680, Vidal, paints. 14,287, Gilgan, acetylene gas generator. 14,756, Kleinberg & Fraenkel, shower-baths. 15,107, Bertrand, paint.

Trigg's "Formal Gardens."—Her Majesty the Queen has graciously been pleased to accept the dedication of Mr. H. Inigo Trigg's work on the formal gardens of England and Scotland, the concluding part of which will be shortly issued to the subscribers by Mr. P. T. Batsford.

SONNING BRIDGES.

AN act of vandalism is proposed on the Thames by the Oxfordshire County Council. The Roads and Bridges Committee in a report on Sonning bridges said:—

"The history and circumstances of Sonning bridges were reported by the committee to the council at their meeting in February, 1892, with the intimation that the bridges would not long withstand frequent heavy traffic or serious floods. The bridges form an important means of communication between the roads leading to the River Thames, at Eye and Dunsden on the Oxford side, and at Sonning on the Berkshire side—the nearest way of crossing the river being Caversham Bridge, about three miles on one side, and Henley Bridge, about five miles on the other side; and the traffic over the bridges is considerable, and includes constant heavy traffic. At this point the river is about 300yds. wide, and is crossed by a series of three county bridges, an intervening roadway, and the bridge over the navigable part of the river, which is not a county bridge. The three bridges repairable by the County Council are situate wholly in Oxfordshire, and consist of Mill Bridge, an old wooden structure over the mill stream, 188ft. in length; New Bridge, a brick-and-timber structure over a branch of the river, 130ft. in length; and Hall's Bridge, a wooden structure over a back channel, leading from the weir, 111ft. in length—making a total length of 438ft., the average width of all the three bridges being 15ft. It being ascertained that the county bridges were getting weaker and unfit for the heavy traffic which passes over them, several members of the committee inspected the bridges, in consultation with the county surveyor, when it was evident that new piles and supports were necessary, and a further examination was made, which resulted in forcing the committee to the conclusion that it would be useless to expend money upon continual repairs of the old structures, and that a new and wider bridge would eventually prove the most economical scheme. The committee have therefore decided to recommend the removal of the existing wooden lengths, the substitution of iron piles and steel girders, the strengthening of the present brick portions and the addition of brick abutments at each end, and the widening of the bridges so as to ensure a roadway of 24ft. As it is most desirable, having regard to the state of the river and the condition of the bridges, to commence the work before the winter months, the committee request that they may be authorised to obtain and accept tenders, and to employ the county surveyor to undertake the rebuilding of the bridges, according to the plans prepared by him, at a cost not exceeding £8,000."

Naturally this proposal roused opposition among the members present at the council meeting. Sir William Markby expressed his opinion that the beauty of the Thames, a valuable possession of the county, would be destroyed by an iron girder bridge. Lord Saye and Sele urged that the council ought to have the plans before them, also observing that the renewal of the existing bridges would tend to preserve the appearance of the beautiful village of Sonning. Lord Jersey suggested the matter be deferred until the council had had some opportunity of seeing the plans and also of knowing exactly how much the cost would be. But the chairman, Mr. T. E. Cobb, observing that postponement might mean losing the season, said that he should put the question whether the report should be referred to the committee as an amendment.

The county surveyor said he very much doubted whether the Thames Conservancy had anything to do with it.

Finally the amendment was proposed by Lord Jersey, seconded by Sir W. Markby, and lost by 16 votes to 17.

Thus by a bare majority the council have practically given the county surveyor authority to destroy the existing bridge, and to set up in its place another bridge, of iron, of which they have not even seen the plans.

Law Cases.

A Claim in regard to the Quality of Bricks.—At the Darlington County Court recently, before his Honour Judge Templer, Martin Meehan, speculative builder, of Darlington, claimed £50 damages from Messrs. Cradock, Wake & Co., brickmakers, Eaglescliffe, for alleged breach of contract. The evidence was to the effect that in February last the defendants entered into a contract to supply the plaintiff with all the second bricks they had, which it was stated were contained in the three kilns known as the Newcastle kilns, and numbered between 90,000 and 100,000. The price agreed upon was 12s. 6d. per 1,000, exclusive of carriage. Having received and paid for 40,000 of the bricks, the plaintiff subsequently made application for the remainder. He was informed by the defendants, however, that they had no more second bricks, and that therefore they could not supply him with any. He had consequently to purchase about 55,000 or 60,000 from Mr. Sherwood (Yarmlane) at 30s. per 1,000, and he alleged that meanwhile the defendants had broken their contract by disposing of the bricks that he should have been supplied with to certain parties at an increased price. Charles Mathew Cradock, secretary and managing director of the firm of Cradock, Allison & Co., brickmakers, and the then secretary and managing director of Messrs. Cradock, Wake & Co., admitted that, owing to the plaintiff not removing the bricks, he forgot that they were included in the contract, and on or about April 21st sold about 1,500 of them to Messrs. Ward Brothers, and a great number of the others had crumbled away because of the wet weather and exposure. The bricks which had been sold to the other parties were a better class of brick, and were taken from different kilns. It was also stated that the plaintiff had paid an excessive price for the bricks he obtained from Mr. Sherwood, and that they were of superior quality to those supplied to him by the defendants. The judge said the defendants had accounted for practically the whole of the bricks in question, and he thought the plaintiff had shown negligence in not taking them away when they were there. His Honour entered judgment for the defendants with costs, and gave the plaintiff the liberty to take £5 out of the £21 which had been previously paid into court, the balance of the amount remaining to go to the defendants.

London Building Act.—The adjourned summons against Patman and Fotheringham, Ltd., Liverpool Road, N., under the London Building Act, 1894, came up before the City of London Court recently. The complaint of Mr. Woodthorpe, surveyor for the northern division of the City, was that the defendants, by making openings in the party walls at 54, 55 and 56, Coleman Street, had united the buildings, which were not, in the words of the Act, wholly in one occupation or adapted so to be. The magistrate said he had carefully considered the matter, and had also visited the premises. On the facts proved he held that they were not wholly in one occupation, but he found that they were adapted and suitable to be so. He was, therefore, of opinion that the case was within the exception contained in section 77 of the Act. Under the circumstances he dismissed the summons.



ST. AIDAN'S VICARAGE, LEEDS: THE DRAWING-ROOM. BEDFORD AND KITSON, ARCHITECTS.

A Stained-Glass Window in Caister Church has been erected at a cost of £300 as a memorial to the crew of the Beauchamp lifeboat, which capsized last November. It is the work of Mr. Paul Woodruff.

St. Aidan's Vicarage, Leeds, stands on the slope of a steep hill. The entrance door is on the half landing, with study and parish room half a storey below, and drawing-room, dining-room and offices half a storey above. By this arrangement it is found possible to keep the dwelling-house proper free from the traffic connected with the business of the parish. The house is built of Leeds pressed bricks, with Morley-stone dressings to the bay window and doors, and a red-tiled roof. The drawing-room and dining-room are separated by a folding screen, which when thrown open form a room about 42ft. by 16ft. The architects were Messrs. Bedford & Kitson, of Leeds.

Engineering Notes.

The St. Cuthbert's Schools, Pemberton, has been supplied by Messrs. E. H. Shorland & Brother, of Manchester, with their patent Manchester stoves, grates and ventilators.

Dangerous Timber Bridges.—The English sportsman and author, Mr. Bailie-Grohman, recently had a wonderful escape from death. As he was returning to the railway from shooting chamois in the Styrian Alps, the timber bridge over the Solk broke under the weight of the two horses and carriage, though the latter was but a light country vehicle. All were thrown into the torrent below, but eventually the occupants managed to reach the bank. The incident may well serve as a warning to travellers who penetrate into the unfrequented parts of the Alps, where often the flimsiest bridges of rotten timber span deep gorges. A short time ago another and yet higher bridge in the same valley gave way and tumbled into the gorge, fortunately during the night, when nobody was on it.

The British Association will begin its annual meeting at Belfast on Wednesday, September 10th. The president this year is Prof. James Dewar, F.R.S., who in his address will devote himself to the progress in physical chemistry. In the Chemistry Section a paper will be read by Dr. F. Clowes of the London County Council on "The Action of Distilled Water on Lead." In the Economic, Science and Statistics Section, Dr. Cannan in his presidential address will deal with economic theory applied to practical questions, such as housing and other municipal enterprises. The Engineering Section will be presided over by Prof. John Perry, whose address will be on the "Training of Engineers." Mr. L. L. Macassey will deal with "The Belfast Water Supply"; Mr. M. B. Field, "Exhibition of Electrical Apparatus"; Mr. H. A. Humphrey on "Recent Progress in Large Gas Engines"; Mr. L. Holroyd Smith, "The Importance of Minor Details in Engineering Work"; and Mr. G. W. Herdman with "The Direct Reducing Staff." In the Anthropology Section Miss Layard will described a new palæolithic site at Ipswich, and Messrs. Clinch, Fennell and MacRitchie will discuss the significance of British underground dwellings of neolithic and late periods. Reports will be presented on the year's excavations at Silchester and on the age of stone circles.

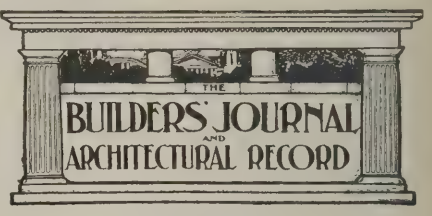
Japanese Steel Works.—For some years past the importance of rendering the Japanese Government independent of foreign countries for a supply of iron and steel has attracted much attention in that country. Experts were dispatched to Europe and the United States to study the great iron and steel works there. Wakamatsu, in the north-west corner of the island of Kiushiu, near the open ports of Moji and Shimonoseki, was selected as the site of the works, which cover about 320 acres, and lie on the eastern side of a large lagoon, ten miles in circumference, which is connected with a pool or basin a mile in diameter, and this, again, with the sea by a short and narrow channel. The lagoon is being deepened to 20ft. at ebb tide, and a quay over 2,000ft. long is being built along the front of the works, so that a ship of 3,000 tons displacement will be able to approach the quay wall. The work done up to the end of last year consisted of a channel 6,000ft. long, 240ft. wide and 14ft. deep, extending from the sea to the pier of the Kiushiu Railway Company. The quay and all parts of the works are connected with the main line of this railway, and there are about twenty miles of line about the works. The raw material, consisting of magnetite, hematite and a smaller quantity of zimonite, is all obtained in Japan, except some supplied from Hu-peh, in China. Two iron mines and three coal mines have been acquired for the use of the works, all within twenty miles of the latter and connected with them by rail. It is estimated that when in full working order the establishment will deal with 250,000 tons of ore per annum, 380,000 tons of coke and 800,000 of coal.

THE INTERNATIONAL FIRE EXHIBITION.

THE arrangements for the International Fire Exhibition at Earl's Court, 1903, are progressing rapidly, the British Fire Prevention Committee's scheme having met with the greatest encouragement on all sides, particularly in Government, scientific and engineering circles. The Duke of Marlborough, K.G., as president of the National Fire Brigades Union, will act as vice-president of the Advisory Council, and Mr. Edwin O. Sachs, as chairman of the British Fire Prevention Committee, will act as chairman of the executive. Mr. Marsland, hon. secretary of the Society of Architects, will perform the duties of hon. secretary of the exhibition. Among those who have consented to act on the Advisory Council, the majority of whom have expressed their intention of taking an active part in the work, are the President of the Royal Society, Sir William Huggins, the presidents of the Institution of Electrical Engineers, the Chemical Society and the Institute of Chemistry, as also Sir Douglas Fox, past-president of the Institution of Civil Engineers; Professor Aitchison, past-president of the Royal Institute of British Architects, and the President of the Royal Navy League. Among Government officials we notice the names of Sir John Taylor, K.C.B., consulting architect, and Mr. Tanner, principal architect to H.M.'s Office of Works; Colonel Bainbridge, C.B., chief superintendent of H.M.'s Ordnance Factories; Captain Thompson, Chief Inspector of Explosives; Dr. Thorpe, F.R.S., principal of the Government Laboratories; Dr. Whitelegge, C.B., Chief Inspector of Factories; Sir James Williamson, C.B., director of H.M. Dockyards; Mr. Gavey, engineer-in-chief of the G.P.O., and Sir W. H. Preece, K.C.B., consulting engineer of the same department. The historical side of the exhibition will be represented by Sir Edward Maunde Thompson, K.C.B., Director of the British Museum; Sir Henry Maxwell Lyte, K.C.B., Deputy-Keeper of the Public Records, and the president of the Archæological Association; while amongst exhibition experts we find the names of Sir Henry Trueman Wood, Mr. Dredge, C.M.G., and Mr. Isidore Spielmann; and among the scientists and electrical engineers not named above, Sir Henry Lockyer, F.R.S., Major-General Festing, F.R.S., Professor Ray Lankester, F.R.S., and Commandatore Marconi. The interest of art will be entrusted to Sir Wyke Bayliss, President of the Royal Society of British Artists, and Mr. Lionel Cust. Sir Henry Irving and Mr. Moss, of the Hippodrome, will represent the important question of safety of life from fire in our theatres and places of public amusements. Lastly, representative members of the fire, salvage and ambulance services include Major Fox, chief of the Salvage Corps; Lieut.-Colonel Seabroke, chairman of the National Fire Brigades Union; Lieut.-Colonel Dixon and Mr. J. H. Dyer, vice-presidents; Mr. Folker, hon. secretary of the same body and Capt. Dyson, of the Windsor Fire Brigade; the Ambulance Section being represented among others by Colonel Sir Herbert Perrott, Bart. As to foreign representatives acting as local corresponding committees to the Councils, the full lists are not yet to hand, except in the case of Germany, where we find, among others, the names of the Director of Public Works, the chief officer of the Berlin Royal Police Fire Brigade, and others.

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COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.		WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDERS MAY BE OBTAINED.
		BUILDING:		
Sept.	4	Pendlebury—Brick Walls, Stone Coping, &c.	Urban District Council	H. Entwisle, Surveyor, Council Offices, Swinton.
,,	4	Kinsale—Cottages	Rural District Council	J. Murphy, Clerk, Council Office, Workhouse, Kinsale.
,,	4	Hebden Bridge—Two Shops and Houses		Sutcliffe & Sutcliffe, Architects, Hebden Bridge.
,,	4	Salford—Coal Shed Roof	Gas Committee	W. W. Woodward, Engineer, Gas Offices, Bloom Street, Salford.
,,	5	Bradford—Extension of Markets	Corporation	T. C. Hope & Son, 23 Bank Street, Bradford.
,,	5	Stretford, Manchester—Buff Terra-Cotta	Urban District Council	E. Woodhouse, 88 Mosley Street, Manchester.
,,	5	Cromer—Chapel, Lodge, Gates and Boundary Wall at Cemetery.	Urban District Council	A. F. Scott, Surveyor, West Street, Cromer.
,,	5	Stretford—Electricity Generating Station	Urban District Council	E. Woodhouse, 88 Mosley Street, Manchester.
,,	5	Greenock—Tilework	Parish Council	Green, S.E. Mr. Fairlie, 36 Nicholson Street, Greenock.
,,	5	Leeds—Wall		City Engineer, Leeds.
,,	5	Cardiff—Building Materials	Guardians	A. J. Harris, Clerk, Queen's Chambers, Cardiff.
,,	5	Dewsbury—Chapel at Workhouse	Union Guardians	Holton & Fox, Architects, Corporation Street, Dewsbury.
,,	5	Langley, near Slough, Bucks—Seven Houses		Edgington & Summerbell, 7 Park Street, Windsor.
,,	6	Monmouth—Alterations to Post Office	Corporation	Borough Surveyor, Monmouth.
,,	6	Southgate, Pontefract—Villa Residence	R. E. Woodcock	Tennant & Bagley, Architects, Ropergate, Pontefract.
,,	6	Porthcawl, Glamorgan—Alterations, &c., to Police Station	County Council	County Surveyor, Town Hall, Bridgend.
,,	6	Troedyrhiw—Rebuilding Inn	D. Morgan & Co.	T. Roderick, Architect, Glebeland, Merthyr Tydfil.
,,	6	Penrhiwceiber—Chapel		T. Roderick, Architect, Clifton Street, Aberdare.
,,	6	Abergavenny—Renovating House		B. J. Francis, Architect, Abergavenny.
,,	6	Armagh—Rebuilding Pavilion	J. Lonsdale	H. C. Parkinson, Architect, Armagh.
,,	6	Gwithian, Cornwall—Rebuilding Hotel	Redruth Brewery Co., Ltd.	H. W. Collins, Architect, Walreddon, Redruth.
,,	6	Bradford—School	School Board	Adkin & Hill, Architects, Prudential Buildings, Bradford.
,,	7	Pontypridd—Hospital	Urban District Council	J. C. Jones, District Council Offices, Pontypridd.
,,	8	London, E.—Stores, Cart and Van Sheds, Lodge, &c.	Stepney Borough Council	M. W. Jameson, 15 Great Alie Street, Whitechapel, E.
,,	8	Truro—Rectory		Mission House, St. Mary's Street, Truro.
,,	8	Belfast Electric Power Station	Great N. Ry. Co. (Ireland)	Engineer-in-Chief, Great N. Ry. Co., Amiens Street, Dublin.
,,	8	Beetham, Westmorland—Schools		J. F. Curwen, 26 Highgate, Kendal.
,,	8	Leeds—Excavators' and Concretors' Work in Connection with Hospital Foundations.	Sanitary Committee	T. Hewson, City Engineer, Municipal Buildings, Leeds.
,,	8	Llandovery, Wales—Cattle and Sheep Market	Corporation	Clerk, Town Hall, Llandovery.
,,	8	Walsall—School	School Board	H. E. Lavender, Architect, Bridge Street, Walsall.
,,	8	Briton Ferry, Wales—Club Building	Working Men's Club & Institute	H. A. Clarke, Architect, Briton Ferry.
,,	8	Walsall—School	School Board	H. E. Lavender, Architect, Bridge Street, Walsall.
,,	8	Bont, Llanbrynmair—Minister's House		J. T. Jones, Llanbrynmair.
,,	8	Dublin—Extension of Gas Testing Station	Corporation	C. J. M'Carthy, City Architect, Municipal Buildings, Cork Hill, Dublin.
,,	9	Castlebar, co. Mayo—Crown Post Office and Caretaker's Residence.	Board of Public Works	H. Williams, Secretary, Office of Public Works, Dublin.
,,	9	Cardiff—Alterations to Electric Light Station	Great Western Railway Co.	Engineer, Newport Station.
,,	9	Enfield—Deaf Centre and Additions to School	School Board	G. E. T. Laurence, 22 Buckingham Street, Adelphi, W.C.
,,	9	Dover—Turkish Baths	Town Council	H. E. Stilgoe, Borough Engineer, Maisson Dieu House, Biggin Street, Dover.
,,	9	Belfast—Water-closets, Bathrooms, Lavatories, &c.	Union Guardians	J. C. Neeson, Clerk, Workhouse, Belfast.
,,	9	Edmonton—Portland Cement	Urban District Council	G. E. Eachus, Engineer, Town Hall, Edmonton.
,,	10	Woolwich—Additions, &c., to Premises	Union Guardians	Church, Quick & Whincop, Architects, William Street, Woolwich.
,,	10	Bargoed—Chapel		J. Evans, Bookseller, High Street, Bargoed.
,,	10	Carlton, near Wakefield—Five Cottages	Leeds Indus. Co-op. Soc., Ltd.	Works, 24 Meadow Road, Leeds.
,,	10	Chesterfield—Isolation Hospital	Joint Hospital Committee	G. E. Bolshaw, 189 Lord Street, Southport.
,,	10	Bristol—Infirmary	Union Guardians	J. J. Simpson, Clerk, St. Peter's Hospital, Bristol.
,,	10	Knighton, Plymouth—Dry Wall	Plympton St. Mary Rural District Council.	F. W. Cleverton, 4 Buckland Terrace, Plymouth.
,,	11	Hackney—Coal Stores	Borough Council	R. Hammond, 61 Victoria Street, Westminster, S.W.
,,	11	Walthamstow—Sorting Office	Commnrs. of H.M. Works, &c.	J. Wager, H.M. Office of Works, &c., Storey's Gate, Westminster.
,,	12	Hull—Synagogue and Schoolrooms	Old Hebrew Congregation	Ansdell & Cox, 50 Savile Street, Hull.
,,	12	Blackley—Lavatory	Manchester Corporation	City Architect, Town Hall, Manchester.
,,	12	Auchterderran, Scotland—School	School Board	W. Williamson, 220 High Street, Kirkcaldy.
,,	13	Dowlais—Showroom, House, &c.	Picton & Morris	T. Roderick, Architect, Glebeland, Merthyr.
,,	15	London, N.W.—Pair of Cottages, Fire Escape Shed, &c.	Hendon Urban District Council	S. S. Grimley, Engineer, Council Offices, The Burroughs, Hendon
,,	15	Llwyncelyn, Porth, Wales—School		J. Rees, Hillside Cottage, Pentre.
,,	16	Leyland, Lancs—Business Premises	Industrial Co-op. Soc., Ltd.	H. Howarth, Architect, Morecambe.
,,	18	Woolwich—Municipal Buildings	Borough Council	A. B. Bryceson, Town Clerk, Town Hall, Woolwich.
,,	18	London, S.E.—Operating Room at Infirmary	Southwark Union Guardians	G. D. Stevenson, 13 & 14 King Street, Cheapside, E.C.
,,	22	London, E.—Stores, Cart and Van-Sheds, Lodge, Urinals, &c.	Stepney Borough Council	M. W. Jameson, 15 Great Alie Street, Whitechapel, E.
,,	30	Wesham, Lancs—Workhouse and Offices	Fylde Union Guardians	Haywood & Harrison, Accrington.
Oct.	7	Acton, W.—Refuse Destructor	District Council	D. J. Ebbetts, 242 High Street, Acton, W.
,,	7	London, S.E.—Cartshed, Bothy, &c.	London County Council	General Section, Architect's Department, 18 Pall Mall East, S.W.
		ENGINEERING:		
Sept.	4	Swansea—Hydraulic Accumulators, &c.	Harbour Trustees	A. O. Schenk, Harbour Offices, Swansea.
,,	4	Swansea—Drawbridge	Harbour Trustees	A. O. Schenk, Harbour Offices, Swansea.
,,	4	Cork—Pumping Engines, &c.	Corporation	H. A. Cutler, City Engineer, Cork.
,,	4	West Ham—Piping	Town Council	J. K. Bock, Abbey Mills, West Ham.
,,	4	Aberdeen—Heating Apparatus	Northern Co-op. Co., Ltd.	Secretary, 54 Lock Street, Aberdeen.
,,	4	Llandovery—Steel Bridge	Rural District Council	D. T. M. Jones, Clerk, District Council Offices, Llandovery.
,,	4	Rochdale—Heating Apparatus	Health Committee	S. S. Platt, Borough Surveyor, Town Hall, Rochdale.
,,	4	West Ham—Tramways	Corporation	J. E. Waller, 29 Great George Street, Westminster.
,,	5	Pentre, Wales—Fire Appliances	Rhondda Urban District Council	W. J. Jones, Engineer, Council Offices, Pentre.
,,	5	Southwold, Suffolk—Cliff Protection Works	Corporation	Borough Surveyor, Town Hall, Southwold.
,,	6	Naas, Ireland—Well, Pump and Wall	No. 2 Rural District Council	D. J. Purcell, Clerk, Board Room, Workhouse, Naas.
,,	6	Londonderry—Deepening Well	No. 1 Rural District Council	M. A. Robinson, Richmond Street, Londonderry.
,,	6	Witney, Oxon—Waterworks	Rural District Council	G. Winship, Engineer, Borough Buildings, Abingdon.
,,	8	Margate—Adit	Waterworks	A. Latham, Municipal Buildings, Margate.
,,	8	Menai Bridge, Anglesey—Bridge Improvement	Urban District Council	J. J. Webster, 39 Victoria Street, Westminster.
,,	8	Naas, Ireland—Wells and Sewerage Works	No. 1 Rural District Council	D. J. Purcell, Clerk, Board Room, Workhouse, Naas.
,,	8	Amsterdam—Cables		Director of the Elec. Wks., O. Z. Achterburgwal 213, Amsterdam
,,	8	Brighton—Engines, &c.	Town Council	F. J. Tillstone, Town Clerk, Town Hall, Brighton.
,,	8	Llanelly—Masonry and Timber Bridges	Harbour Commissioners	J. V. Stewart, Engineer, Harbour Office, Llanelly.
,,	8	Amsterdam—Electric Cabs	Municipal Council	Director of Electrical Works, O.Z. Achterburgwal 213, Amsterdam.
,,	8	Manchester—Alterations, &c., to Bridge	Corporation	City Surveyor, Town Hall, Manchester.
,,	9	Potton, Bedfordshire—Drainage Works	Rural District Council	T. J. Hooper, Clerk to Biggleswade, R.D.C.
,,	10	Bowes, near Barnard Castle—Waterworks	Startforth Rural District Council	J. E. Parker, Post Office Chambers, Newcastle-on-Tyne.
,,	10	Bristol—Boilers, Heating Apparatus, &c.	Board of Guardians	J. J. Simpson, Clerk, St. Peter's Hospital, Bristol.
,,	10	Wembury Ford—Laying Pipes	Plympton St. Mary R.D.C.	F. W. Cleverton, 4 Buckland Terrace, Plymouth.
,,	11	Andraitx, Baleares, Spain—Dredging		Office of the Ministry of Agriculture, Commerce and Public Works, Madrid.
,,	14	St. Petersburg, Russia—Two Bridges over River Neva		The Delegation Municipale, St. Petersburg.
,,	15	Launceston, Tasmania—Electric Power Transmission Extensions.	Mayor and Aldermen	J. Terry & Co., 7 Great Winchester Street, E.C.
,,	15	Cairo—Widening Canal	Ministry of Public Works	Inspector of Irritation, Projects Circle, Minia.
,,	15	Talybont, Wales—Waterworks	Rural District Council	B. L. Pritchard, 8 Castle Street, Brecon.
,,	17	Barnsley—Filter Beds	Corporation	J. H. Taylor, Manor House, Barnsley.
,,	18	King's Norton, Birmingham—Electric Lighting Lease	Urban District Council	A. W. Cross, 23 Valentine Road, King's Norton.
,,	21	Duinbergen, Belgium—Three Piers on Beach		Rue des Augustins, No. 15, Brussels.
,,	29	Vigo and Bayona, Spain—Electric Tramway		Office of the Ministry of Agriculture, Commerce and Public Works, Madrid.
,,	30	Port Adelaide, South Australia—Harbour		Agent-General for South Australia, 1 Crosby Square, London.

COMPLETE LIST OF CONTRACTS OPEN—*continued.*

DATE OF DELIVERY.		WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDERS MAY BE OBTAINED.
		ENGINEERING—*continued.*		
Oct.	7	Newcastle-on-Tyne—Electrification of Line	Directors, N.E.R.	Wilson Worsdell, N.E R., Gateshead-on-Tyne.
,,	7	London, W.—Refuse Destructor	Acton District Council	D. J. Ebbetts, 242 High Street, Acton, W.
Nov.	14	St. Petersburg—Electric Traction on Tram Lines	Stadt Amt (Town Council)	Stadt Amt, St. Petersburg, Russia.
,,	30	Shanghai—Electric Lighting	British Municipal Councils	Office of the Board of Trade, 50 Parliament Street, S.W.
Dec	13	Madrid—Canal Reservoir		Office of the Ministry of Agriculture, Commerce and Public Works, Madrid.
		IRON AND STEEL:		
Sept.	4	Pendlebury, Lancs—Iron Railing	Urban District Council	H. Entwisle, Surveyor, Council Offices, Swinton.
,,	4	Bradford—Stores	Gas Committee	Engineer, Mill Street Gasworks, Bradford
,,	5	Cardiff—Ironmongery, &c.	Guardians	A. J. Harris, Clerk, Queen's Chambers, Cardiff.
,,	5	Leeds—Railings, &c.		City Engineer, Leeds.
,,	6	Blackpool—Railing	Highway Committee	J. S. Brodie, Borough Engineer, Town Hall, Blackpool.
,,	8	Abercarn, Mon—Pipes	Urban District Council	G. Stevens, Engineer, Council Offices, Abercarn, Mon.
,,	8	Ashton-under-Lyne—Pipes	Waterworks Committee	G. H. Hill & Sons, 3 Victoria Street, Westminster.
,,	8	Margate—Cast-iron Rising Main, &c.	Corporation	A. Latham, Engineer, Municipal Buildings, Margate.
,,	9	London, E.C.—Chains and Springs	Southern Mahratta Rly. Co., Ltd.	E. Z. Thornton, 46 Queen Anne's Gate, Westminster, S.W.
,,	12	Valetta, Malta—Pipes, Specials and Fittings		Crown Agents for the Colonies, Downing Street, London.
,,	15	Pietermaritzburg—Rails, &c.		Ford Brothers, 12 Southampton Street, Fitzroy Sq., London, W.
,,	18	Hastings—Wrought-iron Fencing	Corporation	P. H. Palmer, Borough Engineer, Town Hall, Hastings.
,,	28	Menston—Iron and Steel, &c.		Clerk, Asylum Committee, County Hall, Wakefield.
,,	30	Copenhagen—Railway Stores	Danish State Railways	Construction of the State Railways, 10 Reventlowsgade, Copenhagen.
Oct.	2	London, S.W.—Railway Stores	Secretary of State for India	Director-General of Stores, India Office, Whitehall, S.W.
,,	9	London, S.W.—Chains and Springs	Southern Mahratta Rly. Co., Ltd.	E. Z. Thornton, 46 Queen Anne's Gate, Westminster, S.W.
		FURNITURE:		
Sept.	23	East Ham—Furniture	Urban District Council	A. H. Campbell, Surveyor, Public Offices, Wakefield St., East Ham
		PAINTING AND PLUMBING:		
Sept.	4	Prestwich, Lancs—Paints, Varnish and Oils	County Asylum Committee	Clerk, Asylum, Prestwich.
,,	4	Reading—Painting, Whitewashing, &c., at Workhouse	Guardians	Master, Workhouse, Reading.
,,	5	Harrogate—Painting		J. R. Usher, 26 Dragon Parade, Harrogate.
,,	5	Cardiff—Paints, Oils, &c.	Guardians	A. J. Harris, Clerk, Queen's Chambers, Cardiff.
,,	6	Preston, Lancs—Painting	County Council	W. C. Hall, County Offices, Preston.
,,	8	Nottingham—Painting		Poor Law Offices, Nottingham.
		ROADS AND CARTAGE:		
Sept.	4	West Ham, E.—Paving Tramways	Corporation	J. G. Morley, Borough Engineer, Town Hall, West Ham, E.
,,	4	Southend-on-Sea—Making-up Roads	Corporation	A. Fidler, Borough Surveyor, Southend-on-Sea.
,,	5	Stockton-on-Tees—Forming, &c.	Corporation	M. H. Sykes, Borough Engineer, Town Hall, Stockton-on-Tees.
,,	5	Willington—Foothpaths	Urban District Council	J. Cooke, 2 West End Terrace, Willington.
,,	5	Soothill, Upper Yorks—Kerbs, &c.	Urban District Council	J. Blackburn, Surveyor, Shaw Cross, near Dewsbury.
,,	6	Watford—Cartage		Abbots Langley Gas Co., 13 King Street, Watford.
,,	8	London, S.W.—Eight Carts	Wandsworth Borough Council	H. G. Hills, Town Clerk, Council House, Wandsworth, S.W.
,,	9	London, S.E.—Kerbing, &c.	Lewisham Borough Council	Town Hall, Catford.
,,	9	Bromley—Road Works	Urban District Council	Surveyor, Council Offices, Bromley, Kent.
,,	9	Edmonton—Broken Granite	Urban District Council	G. E. Eachus, Engineer, Town Hall, Edmonton.
,,	12	Halifax—Paving	Highways Committee	J. Lord, Borough Engineer, Town Hall, Halifax.
,,	12	Woodford, Essex—Street Works	Urban District Council	W. Farrington, Surveyor, Woodford Green.
,,	15	Felixstowe—Granite	Urban District Council	F. B. Jennings, Clerk, Town Hall, Felixstowe.
,,	16	Croydon—Road Repair	Town Council	Borough Road Surveyor, Town Hall, Croydon.
,,	17	Croydon—Making-up, &c., Streets	Rural District Council	E. A. Winder, Acting Clerk, Town Hall, Croydon.
,,	17	Croydon—Cartage	Rural District Council	E. A. Winder, Acting Clerk, Town Hall, Croydon.
		SANITARY:		
Sept.	4	Castleford—Sewer	Urban District Council	W. Green, Surveyor, Council Offices, Castleford.
,,	4	Blaydon-on-Tyne—Scavenging	Urban District Council	R. Biggins, Sanitary Inspector, Council Offices, Blaydon-on-Tyne.
,,	4	Bradford—Lime, &c.	Gas Committee	F. Stevens, Town Clerk, Town Hall, Bradford.
,,	6	Maesteg—Sewers	Margam Estate	F. B. Smith & Co., 10 Warwick Court, London.
,,	6	Rawmarsh, Yorks—Sewers	Urban District Council	J. W. Bellamy, Clerk, Rawmarsh.
,,	8	Naas, Ireland—Sewerage Works	No. 1 R.D.C.	F. Bergin, Engineer, Kildare.
,,	9	London, N.—Stoneware Pipes	Edmonton U.D.C.	G. E. Eachus, Engineer, Town Hall, Edmonton.
,,	9	West Molesey, Surrey—Sewerage Works	Urban District Council	J. Stevenson, Engineer, District Council Offices, East Molesey.
,,	9	Stratton, Wilts—Sewerage Works	Rural District Council	Beesley, Son & Nichols, 11 Victoria Street, Westminster, S.W
,,	15	Northallerton—Drainage Works	Rural District Council	W. Fowle, Clerk, Northallerton.
,,	20	Burnley—Sewerage Works	Rural District Council	S. Edmondson, 18 Nicholas Street, Burnley.
,,	22	London, W.—Barging away Dust, Slop and Manure	Kensington Royal Boro' Council	W. Weaver, Boro' Surveyor, Town Hall, Kensington High St., W.
,,	26	West Hartlepool—Sewer	Corporation	J. W. Brown, Borough Engineer, West Hartlepool.
Nov.	15	Monte Video—Sanitary Works	Government of Uraguay	Uraguay Legation, London.
		TIMBER:		
Sept.	29	London—Red Fir Telegraph Poles	General Post Office	S. C. Hooley, Controller of Stores, General Post Office, E.C.

COMPETITIONS OPEN.

DATE OF DELIVERY.		DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Sept.	7	Southend—Church, Clergy House, Hall, &c.	—	C. H. J. Talmage, Southchurch Road, Warnor Square, Southend-on-Sea.
,,	14	St. Petersburg—Bridges over Great Neva River	—	St. Petersburg Gorodskaja Uprawa, St. Petersburg.
,,	15	Liverpool—Labourers' Dwellings	£250, £150, £100.	Town Clerk, Liverpool.
,,	16	London, S.E.—Artizans' Dwellings	£100, £60, £40.	F. Ryall, Town Clerk, Bermondsey Town Hall, Spa Road, S.E.
,,	23	London, N.—Municipal Buildings, Fire Station, Baths, &c.	£200, £100, £50.	W. H. Prescott, Engineer, U.D.C. Offices, Tottenham.
,,	25	Bideford—Municipal Offices	£30, £15, £10.	W. B. Seldon, 18 The Quay, Bideford.
,,	29	Bideford—Municipal Offices and Public Library	£30, £15, £10.	W. B. Seldon, Town Clerk, 18 The Quay, Bideford.
Oct.	1	Maidenhead—Free Library	£50, £20, £10.	John Kick, Town Clerk, Guildhall, Maidenhead.
,,	14	Newark—Alterations and Additions to Infirmary	£21.	Mr. H. Colton, Clerk to Guardians, 27 Lombard Street, Newark
Nov.	1	Allahabad—Memorial to Queen Victoria	2,000 Rs.	H. N. Wright, Indian Civil Service, Allahabad, India.
Jan.	31	Cape Town—University Buildings	£400, £200, £100.	Agent-General for the Cape of Good Hope, London.

New Companies.

West Wilts Land and Building Co., Ltd.

Registered to acquire certain land at Melksham, Wiltshire, to acquire and work a brickyard at Lowden, near Chippenham, a pottery works at Stanley, near Chippenham, and to carry on business as brick, tile and terra-cotta makers, dealers in all kinds of building materials, builders, ironmongers, engineers and metal founders, &c. Capital £10,000 in £1 shares. Registered office: 26, Market Place, Chippenham.

John Linton & Co., Ltd.

Registered to acquire the business of a builder and contractor as carried on at Newport, Mon., by John Linton, to develop the same, and to carry on business as builders, contractors, decorators, merchants, dealers in stone, sand, lime, bricks, timber, hardware, &c. Capital £15,000 in £1 shares. Registered office: 87, Commercial Street, Newport, Mon.

Thackrah & Son, Ltd.

Registered to acquire the business of ironmongers, cutlers, mill-furnishers, electrical and sanitary engineers, carried on by Mrs. E. A. Daniels at Halifax, Yorkshire, as J. Thackrah & Son. Capital £6,000 in £1 shares. The directors are W. H. York and J. A. Daniels. Registered office: 3, Fountain Street, Halifax, Yorkshire.

Chinley Land and Building Syndicate, Ltd.

Registered to acquire for investment or resale, and to deal in and with lands, estates and property of whatever tenure at Chinley, in the county of Derby, also any other free or leasehold buildings; to develop the resources of land by draining, farming or building thereon; as brick and tile and terra-cotta makers; as electricians and builders' material merchants, decorators, lime, sand and stone merchants, iron merchants, &c. Capital £2,000 in £10 shares. Registered office: 3, Spring Gardens, Manchester.

Queenborough Cement Co., Ltd.

Registered to acquire the undertaking of the Queenborough Cement Works, Queenborough, Kent, and to carry on the general business of cement merchants, manufacturers of bricks, tiles and terra-cotta goods, chalk, pottery and clay, &c. Capital £19,000 in 10,000 £1 ordinary shares and 900 £10 preference shares.

Metropolitan Securities, Ltd.

Registered to acquire and turn to account any real or personal property, and to carry on the business of builders, contractors, decorators, dealers in and with any freehold or leasehold ground rents, &c. Capital £10,000 in £1 shares.

Boryslaw Slate Lands (No. 1), Ltd.

Registered to acquire and turn to account any lands, mines and other property in any part of the world. Capital £80 in £1 shares. Registered office: 37, Walbrook, E.C.

Tenders.

Information from accredited sources should be sent to "The Editor" at latest by noon on Monday if intended for publication in the following Wednesday's issue. Results of Tenders cannot be accepted unless they contain the name of the Architect or Surveyor for the work.

Addressed postcards on which lists of tenders may be stated will be sent post free on application to the Manager, BUILDERS' JOURNAL, *Effingham House, Arundel Street, Strand, W.C.*

Abingdon.—For the construction of about 1,430 yards of stoneware pipe sewers, for the Corporation. Mr. George Winship, C.E., engineer, Abingdon:—

Hinkins, Royston	£2,592 16 6
Hayward, Grays, Essex	2,230 8 6
Roberts, Hoarwithy	2,095 0 0
Mann, Edgware	1,915 10 0
Fenton, Reading	1,852 0 0
Craig, Manchester	1,777 12 9
Wheeler, Abingdon	1,696 0 0
Swaker, Whitton	1,690 4 0
Randall,* Abingdon	1,598 7 10

* Accepted.

Barnes.—For the erection of a new school for 350 infants, for the Barnes School Board. Mr. C. Innes, architect, 50 Cannon Street, E.C.:—

Parkins	£7,553	Lorden & Sons	£5,777
Mark	6,850	J. Barker & Co.	5,752
Balaam Brothers	6,390	Sharpington	5,598
Stimpson	6,100	Roffey	5,546
Hunt & Sons	6,060	Knight	5,514
Barrett & Power	5,870	Nightingale	5,465
Patrick	5,855	Renshaw	5,197
Dove Brothers	5,800		

Cardiff.—For the erection of warerooms, 41 & 42 St. Mary Street, for Mr. David Morgan. Mr. Edwin Seward, architect, Queen's Chambers, Cardiff:—

F. Williams	£5,250	J. Allan	£4,020
Lattey & Co.	4,464	Turner & Sons	3,998
D. H. Davies	4,390	J. Thomas	3,985
G. Griffiths	4,360	W. Symonds	3,956
G. Hallett	4,260	Thomas & Co.	3,897
F. Couzins	4,096	Beames & Nephew	3,845
Knox & Wells	4,070	Evans & Brothers,* Cathays, Cardiff	3,764
F. Small	4,035		

* Accepted.

Cardiff.—For the foundations to a new asylum at Velindre, for the Cardiff Asylums Committee:—

Lattey & Co., Ltd., Cardiff	£26,676
J. & T. Binns, Croydon	24,584
Charles Wall, London	22,065
Frank Ashley, Cardiff	£21,042
James Allan & Sons, Cardiff	20,632
W. Symonds & Co., Cardiff	19,578
E. Turner & Sons, Cardiff	18,880
Watkin Williams, Pontypridd	18,000
H. Willcock & Co., Wolverhampton	17,250
David Davies, Cardiff	17,137
Wm. Thomas & Co., Cardiff	16,923
D. W. Davies,* Cardiff	16,066

* Accepted.

Carlton Colville, Suffolk.—For gardener's cottage at Carlton Colville, Suffolk, for the Rev. L. W. H. Andrews. Mr. Herbert J. Green, architect, 31 Castle Meadow, Norwich:—

G. Elsey, Lowestoft	£538 0
A. G. Beckett, Carlton Colville	489 6
C. R. Cole, Lowestoft	460 8
W. J. Scarle,* Carlton Colville	418 12

* Accepted conditionally.

Chesterfield.—For the erection of an infirmary and alterations to the workhouse, for the guardians:—

James Fidler, Eckington	£45,634 0 0
J. Shillito & Son, Bury St. Edmunds	44,800 0 0
J. H. Vickers, Ltd., Nottingham	43,484 17 5
H. Vickers & Son, Nottingham	43,000 0 0
F. Lee, Alfreton and Chesterfield	42,690 0 0
J. Lowe & Son, Burton-on-Trent	41,561 1 9
J. Hodson & Son, Nottingham	39,997 17 6
W. Maule, Nottingham	39,519 0 0

East Sheen.—For laying-out and sewering portion of Palewell Park Estate, East Sheen, for Mr. H. Shepherd Cross, M.P. Mr. William Hunt, surveyor, Donnington House, Norfolk Street, Strand:—

Wimpey & Co., Hammersmith	£1,800
C. Killingback, Camden Town	1,756
W. H. Wheeler, Southwark	1,743
J. Jackson, Forest Gate	1,729
W. H. Woodham,* Catford, S.E.	1,665

* Accepted.

Epsom.—For making-up Station Road, King's Road, Belmont Road, Cross Road, and part of Crescent Road, Belmont, in the parish of Cheam, for the Epsom Rural District Council. Mr. T. E. Ware, highway surveyor, Waterloo Road, Epsom:—

E. Iles, Mitcham, Surrey	£3,602 7 0
J. Meston, North Kensington	3,124 0 0
S. Kavanagh & Co., Surbiton	2,564 15 6
J. May,* Ashtead, Surrey	2,335 0 0

* Accepted.

Sebergham Castle.—Accepted for first part of new residence for Mr. C. J. Wilkinson, M.A. Mr. A. B. Plummer, F.R.I.B.A., M.S.I., architect and diocesan surveyor, Newcastle and Tynemouth:—

G. Black, Carlisle	£2,895 7 6

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TENDERS—*cont.*

Hull.—For the works required in the construction of a new street about 907 lineal feet in length on the north side of the Anlaby Road, Hull. Messrs. Wellsted & Easton, engineers, Prince's Dock Chambers, Hull:—

T. C. Starkey	£1,966 13 0
B. Robinson	1,910 0 0
Boyce, Bradley & Co.	1,585 0 0
R. Fisher	1,569 0 11
A. H. Atkinson	1,561 0 0
J. Sangwin,* Northumberland Avenue	1,520 0 0

* Accepted. [All of Hull.]

London, W.C.—For alterations at Bow Street Police Station:—

	Credit.
Mowlem & Co.	£5,379 —
Killby & Gayford	5,180 £30
Clarke & Bracey	5,097 —
Lascelles & Co.	5,052 22
Higgs & Hill	4,994 24
Grover & Sons	4,962 20
Holloway Brothers	4,931 —
F. & F. H. Higgs	4,891 —
Lovatt	4,850 53
Willmott & Sons	4,796 —
Lathey Brothers	4,779 —
Ashby & Horner	4,751 —
Lawrance & Son	4,630 30

Lowestoft.—For permanent-way construction for the Corporation Tramways:—

R. C. Brebner & Co., Edinburgh	£51,804 10 5
J. J. Robson, Newcastle-on-Tyne	40,084 0 10
Macartney, McElroy & Co.	40,063 5 2
E. Nuttall & Co.	36,827 13 0
J. G. White & Co.	35,599 13 0
J. Brunton, Hull	35,169 5 10
W. Griffiths & Co.	34,366 18 9
Dick, Kerr & Co.	34,118 5 6
A. Faulks	33,541 17 4
G. Wimpey & Co.,* The Grove, Hammersmith	33,136 3 4

* Accepted.

Millom (Cumberland).—For the erection of new premises for the Bank of Liverpool, Ltd., Millom. Mr. John F. Curwen, F.R.I.B.A., architect, 26 Highgate, Kendal.

Whole tenders.

D. Mackereth	£3,960 0 0
R. G. W. Bradley	3,700 0 0
W. Richardson	3,270 0 0
W. Tomlinson	2,985 0 0

Separate tenders.

Wallers, masons and bricklayers.

A. J. Blair, Cark-in-Cartmel	£2,095 0 0
W. Richardson	1,722 10 0
R. Pennington,* Kendal	1,705 10 0
W. Tomlinson	1,600 0 0

Slaters.

A. J. Blair	£136 0 0
W. Richardson	73 16 0
T. Mandle, Maryport	70 10 0
W. Tomlinson	70 0 0
W. J. Cross, Morecambe	65 4 0
R. Pennington†	64 10 0

Plasterers.

J. Perrin, Workington	£185 5 5
W. Richardson	163 8 6
W. Tomlinson	163 0 0
W. J. Cross†	149 12 0

Carpenters and joiners.

W. Richardson	£814 12 0
G. F. Martindale, Kendal	735 0 0
W. Tomlinson†	680 0 0

Plumber, painter and glazier.

W. Richardson	£496 5 6

Plumbers.

W. Mandall	£294 3 0
W. Tomlinson	275 0 0
J. M. Clark, Millom and Whitehaven	263 0 0
D. Burns, Whitehaven	250 0 0
J. Mills & Son†	246 0 6

Painters and glaziers.

W. Mandall	£202 2 7
W. Tomlinson	200 0 0
J. Mills & Son†	197 0 9

Fireproof floor.

M. Fawcett & Co., London	£151 0 0

* Accepted, and this includes granite base and steps, supplied by the Shrap Granite Co., Ltd.

† Accepted. [Rest of Millom.]

Slough (Bucks).—For the erection of three cottages and tool store on land adjoining Carter's Place, Salt Hill, Slough, for the Bucks County Council. Mr. R. J. Thomas, M.I.C.E., county surveyor, Aylesbury:—

Butcher & Hendry, Windsor	£1,240
A. Chennell, Cippenham	1,200
R. C. Scott & Son, Lambeth	1,176
H. D. Bowyer, Slough	1,175
J. H. R. Atkins, Slough	1,172
H. Burfoot & Son, Eton Wick	1,171
T. B. Lane & Son,* Colnbrook	1,085

* Accepted.

Port Talbot, Glamorganshire.—Accepted for the erection of ten cottages for Mr. J. Jardine, at Port Talbot Glamorganshire. Messrs. Frank B. Smith & Co., architects, 10 Warwick Court, London:—

J. Nicholas, Port Talbot	£1,915

Stalybridge.—For the erection of four new shops to be built in Market Street, Stalybridge. Mr. Edward Garlick architect, 121 Stamford Street, Stalybridge:—

W. Storrs, Sons & Co., Ltd.	£3,599 0 0
Myles & Warner	3,596 19 7
A. Chorlton	3,397 0 0
Wilson & Roberts	3,362 0 0
Shuttleworth Brothers	3,300 0 0
E. Marshall, Ashton-under-Lyne	3,298 0 0
Saxon Brothers & Co.	3,285 0 0
J. Ridyard, Ashton-under-Lyne	3,280 0 0
Garside, Barnes & Co., Ltd.*	3,185 0 0
J. Robinson, Ashton-under-Lyne	3,100 0 0
Burgess & Sons (plumbing only)	400 0 0

* Accepted. [Rest of Stalybridge.]

Sydney.—For the supply of generating plant for lighting Sydney by electricity, for the City Council:—

J. G. White & Co.	£52,444
British Thomson-Houston Company	51,588
Mather & Platt, Ltd.	50,528
Dick, Kerr & Co., Ltd.*	49,072

* Accepted.

Tywardreath (Cornwall).—For the erection of a new boys' school for the School Board:—

J. H. Mitchell, Tywardreath	£1,990 0 0
Dunn & Bartlett, Par	1,970 0 0
J. Isbell, Fowey	1,770 0 0
Oliver & Bounsall, St. Blazey	1,593 15 6
Pearce & Bounsall,* St. Blazey	1,514 6 6

* Accepted.

Yalding (Kent).—For reconstruction of Hampstead Lane Bridge, Yalding, Kent, for the Kent County Council. Mr. Frederick W. Ruck, county surveyor, 86 Week Street, Maidstone:—

Tuff & Miskin, Rochester	£4,732 3
A. E. Nunn, Tenterden	4,570 0
Barden & Head, Maidstone	4,547 0
G. E. Wallis & Sons,* Maidstone	4,128 0

* Accepted.



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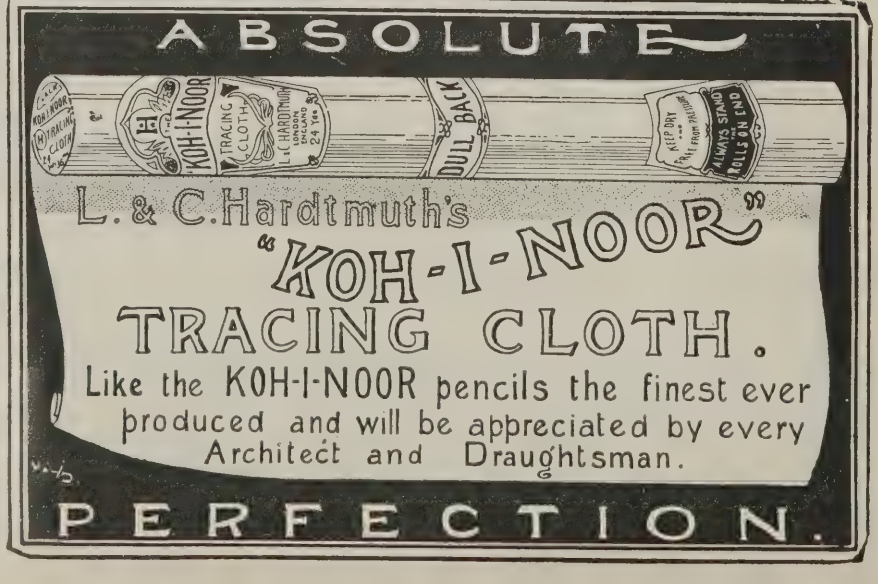
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Straw	do.	1	16	0	2	8	0

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Castor Oil, French	per cwt.	1	5	9		—	
Colza Oil, English	do.	1	6	6		—	
Copperas	per ton	2	0	0		—	
Lard Oil	per cwt.	2	13	0	2	14	0
Lead, white, ground, carbonate	do.	1	4	10		—	
Do. red	do.	1	0	4½			
Linseed Oil, barrels	do.	1	9	9		—	
Petroleum, American	per gal.	0	0	5⅜	0	0	5⅞
Do. Russian	do.	0	0	5½	6	0	5⅝
Pitch	per barrel	0	7	0			
Shellac, orange	per cwt	5	4	0		—	
Soda, crystals	per ton	3	2	6	3	5	0
Tallow, Home Melt	per cwt.	1	8	6	1	10	0
Tar, Stockholm	per barrel	1	1	6		—	
Turpentine	per cwt.	1	13	9	1	13	10½

METALS.

Copper, sheet, strong	per ton	69	0	0		—	
Iron, Staffs., bar	do.	6	12	6	8	10	0
Do. Galvanised Corrugated sheet	do.	11	5	0	11	10	0
Lead, pig, Soft Foreign	do.	11	0	0	11	2	6
Do. do. English common brands	do.	11	5	0		—	
Do. sheet, English 3lb. per sq. ft. and upwards	do.	13	5	0			
Do. pipe	do.	13	15	0		—	
Nails, cut clasp, 3in. to 6in.	do.	9	5	0		—	
Do. floor brads	do.	9	0	0		—	
Steel, Staffs., Girders and Angles	do.	5	15	0	6	5	0
Do. do. Mild bars	do.	6	10	0	7	0	0
Tin, Foreign	do.	123	10	0	124	0	0
Do. English ingots	do.	124	0	0		—	
Zinc, sheets, Silesian	do.	24	0	0		—	
Do. do. Vieille Montaigne	do.	24	0	0		—	
Do. Spelter	do.	19	2	6	19	7	6

TIMBER.

SOFT WOODS.

Fir, Dantzic and Memel	per load	1	13	0	3	0	0
Pine, Quebec, Yellow	per load	4	15	0	6	0	0
Do. Pitch	do.	2	14	0	3	1	0
Laths, log, Dantzic	per fath.	4	10	0	5	10	0
Do. Petersburg	per bundle	0	0	8		—	
Deals, Archangel 2nd & 1st	per P.Std.	16	15	0	24	15	0
Do. do. 4th & 3rd	do.	8	10	0	15	15	0
Do. do. unsorted	do.	5	12	6	6	10	0
Do. Riga	do.	6	15	0	12	10	0
Do. Petersburg 1st Yellow	do.	16	5	0		—	
Do. do. 2nd ,,	do.	9	0	0	12	10	0
Do. do. White	do.	7	5	0	12	10	0
Do. Swedish	do.	5	15	0	13	10	0
Do. White Sea	do.	13	5	0	17	5	0

		£	s.	d.	£	s.	d.
Deals Quebec Pine, 1st	Per P. Std.	19	5	0		—	
Do. do. 2nd	do.	22	5	0		—	
Do. do. 3rd &c.	do.	9	10	0	12	15	0
Do. Canadian Spruce 1st	do.	7	10	0	12	10	0
Do. do. 3rd & 2nd	do.	7	5	0	9	15	0
Do. New Brunswick	do.	7	5	0	8	0	0
Battens, all kinds	do	7	10	0	13	0	0
Flooring Boards 11in. prepared, 1st	per square	0	10	6	0	13	9
Do. 2nd	do	0	8	6	0	12	9
Do. 3rd &c.	do	0	6	9	0	10	0

HARD WOODS.

Ash, Quebec	per load	3	17	6	4	10	0
Birch, Quebec	do.	3	12	6	3	17	6
Box, Turkey	per ton	7	0	0	15	0	0
Cedar, Cuba	per ft sup.	0	0	3¾	0	0	5
Do. Honduras	do.	0	0	1½		—	
Do. Tobasco	do.	0	0	5⅜		—	
Elm, Quebec	per load	0	12	6	5	10	0
Mahogany, Average Price for Cargo, Honduras	per ft. sup.	0	0	4¼	0	0	6
Do. African	do.	0	0	4		—	
Do. St. Domingo	do.	0	0	3¼	0	0	6
Do. Tobasco	do.	0	0	4½	0	0	6
Do. Cuba	do.	0	0	4¼	0	0	6½
Oak, Dantzic and Memel	per load	3	5	0	3	15	0
Do. Quebec	do.	4	12	6	7	15	0
Teak, Rangoon, planks	do.	16	0	0	17	10	0
Wainscot, Riga (Baulk)	do.	3	15	0	5	15	0
Walnut, Odessa Crown	do.	3	15	0	5	15	0
Do. American	per ft. cube	0	3	1		—	

Coming Events.

Thursday Sept. 4.
IRON AND STEEL INSTITUTE.—Meeting at Düsseldorf. (Second Day.) General Meeting at 10 a.m. in Tonhalle to hear Papers read. Visit to Exhibition at 3 p.m., and Banquet at 7 p.m.

Friday Sept. 5.
IRON AND STEEL INSTITUTE.—(Third Day.) Visits to Works.

Saturday Sept. 6.
IRON AND STEEL INSTITUTE.—(Fourth Day.) Visits

Tuesday, Sept. 9.
SANITARY INSTITUTE.—Congress at Manchester (First Day.) Reception of the Members by the President, The Earl Egerton of Tatton, at 12.30 p.m Public Luncheon at 1.30 p.m. Opening of Health Exhibition in St. James's Hall at 3 p.m. Inaugural Address by the President in the Whitworth Hall, Owens College, at 5 p.m.

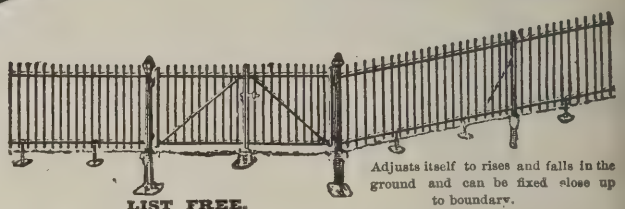
Wednesday, Sept. 10.
SANITARY INSTITUTE.—Congress at Manchester. (Second Day.) Conferences of Municipal Representatives, Port Sanitary Authorities, Medical Officers of Health, Engineers and Surveyors to County and other Sanitary Authorities, Veterinary Inspectors, Sanitary Inspectors, Ladies on Hygiene, and on the Hygiene of School Life, in the Owens College and the Municipal School of Technology, from 9.30 a.m. to 2 p.m. Lecture by Mr. W. N. Shaw, M.A., D.Sc., F.R.S., in the Whitworth Hall, Owens College, at 8.30 p.m.
BRITISH ASSOCIATION.—Meeting at Belfast (First Day).

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An Architectural Causerie.

The McKinley Memorial.

A memorial to the late President McKinley is to be set up in Philadelphia, and the general committee has now issued its programme of the competition to be held. From this we learn that the memorial is not to cost more than £6,000 and is to include a portrait-statue with suitable architectural surroundings. Five premiums of £100 each are offered, and the author of the successful design will, if considered worthy enough by the jury, be recommended for the execution of the work. The jury itself is a noteworthy one, as it consists of the following well-known men:—Wilson Eyre, jun., Theophilus P. Chandler, Edward H. Coates, Charles E. Dana, J. Q. A. Ward, Paul Bartlett and Frank Miles Day. Special mention should be made of the fact that the designs are to be shown by models to a scale of 1½in. to the foot—a much more satisfactory plan than paper drawings—and they are to be sent in not later than March 2nd next to Mr. Charles J. Cohen, the secretary of the Committee on Design, 320, South Broad Street, Philadelphia, Pa. At a time when we are so accustomed to see work in this country captured by Americans it would be very gratifying were the McKinley memorial to be carried out by an Englishman; but such a result is highly improbable, for the reason that there are few architects here who are capable of realising a monumental design, while in America—with such great masters as the French afford—there have been many notable achievements of this kind, the most recent being the great scheme for the remodelling of the centre of Washington.

Houses at Hunstanton.

The two houses at Boston Square, Hunstanton, illustrated on this page, are being built for Mr. William Macintosh from the designs of Mr. Herbert G. Ibberson, F.R.I.B.A., of London. The materials used are brown local stone left rough, with yellow rough-cast to the bays and gables, and plain red tiles on the roofs. Some plans of the houses are given on p. 56.

Disputes.

There are not many men engaged in the building trades to whom architects would like to entrust the development of detail: there are not many men to whom it might be said "Take this block of stone and carve it after your own device." And it is the difficulty of the problem which prevents this result being achieved, or even attempted. On the one hand are men who may be counted as so many working units of a large trade-union organisation, men to whom work is all a matter of hours and wages: on the other hand a body of master-builders, themselves perhaps trained in the same manner, to whom building is little more than a matter of keen competitive prices. It is not to our purpose now to blame either side: both are in difficult positions: but it has always been our tenet to plead for a better understanding between masters and men, for a more conciliatory spirit to be shown in cases of dispute, for a discussion of the merits of the case as between reasonable human beings, instead of a display of that animal-like ferocity to which we have been sadly accustomed in previous years. And in this matter there is no better record than the annual report of the Board of Trade. The report on the strikes and lock-outs that took place in the United Kingdom during 1901 has just been issued, and it is very satisfactory to note what improved conditions prevailed: and, further, that the early months of the present year have been so free from disputes. One of the most noteworthy points brought out in the report is the decrease in the number of persons affected by disputes in the building trades, the total being in fact the smallest during any of the five years reviewed; in 1899 the number was 30,524; in 1900 it was 19,178; while in 1901 it was only 9,797. Wages, as might be supposed, continued to be the chief cause of dispute, though, on account of the badness of trade, demands for increased wages were not so numerous as before; there was, however, a striking increase in the disputes due to proposed reductions in wages. The disputes as to hours of labour affected more persons than in any year since 1897, but they were of comparatively little importance. Another matter



SEMI-DETACHED HOUSES, BOSTON SQUARE, HUNSTANTON.
H. G. IBBERSON, F.R.I.B.A., ARCHITECT.

worth mentioning concerns that all-important matter—arbitration. During 1901 a strike of 270 plumbers at Sheffield was settled under the Conciliation Act by Mr. Thomas Blashill, F.R.I.B.A., late superintending architect to the London County Council; and a dispute affecting 300 limestone quarrymen was settled by Mr. Gordon Falcon; while reference may also be made to a strike of 420 carpenters and joiners in the Teeside and Hartlepool district, settled by a Conciliation Board; and to a prolonged dispute affecting seventy carpenters and joiners at Limerick, settled by mediation of the Most Rev. Dr. O'Dwyer and the Rev. J. M. Cregan. More strikes have been settled by conciliatory agencies in the building and mining and quarrying trades than in other trades; and altogether the report is a most hopeful one.

ST. MARTIN'S CHURCH, VERNEUIL-SUR-SEINE.*

ITS ARCHITECTURAL DEVELOPMENT.

By S. J. NICHOLL.

THE church of St. Martin at Verneuil-sur-Seine, a village on the left bank of the Seine, in the Ile de France, includes in its plan a nave with aisles, transepts, a central tower over the crossing, and a sanctuary also with aisles, all flat-ended; the whole now covered externally by one roof gabled at the ends, broken only by the lantern (or belfry tower rather) and by some irregularity at the transepts.

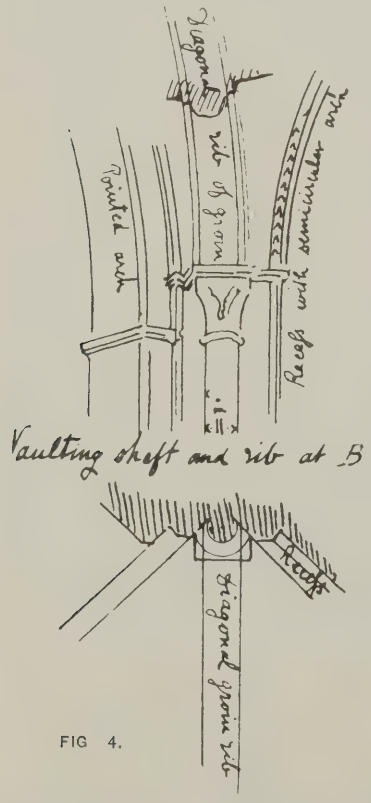


FIG 4.

The effect of the single roof is good; but it may not have been the original intention, as I see in a published restoration of a neighbouring village church (that of Vernouillet) the aisles are presumed to have had roofs of a very flat pitch, leaving the nave roof to assert itself by its sharper angle—certainly the present roof, which like that at Verneuil is in one slope, encroaches awkwardly on the very beautiful central tower with its pinnacled spire. I could not get into the roof over the vault at Verneuil, but have learnt since my visit that a window of good detail hidden by the roof has been discovered which might elucidate this subject.

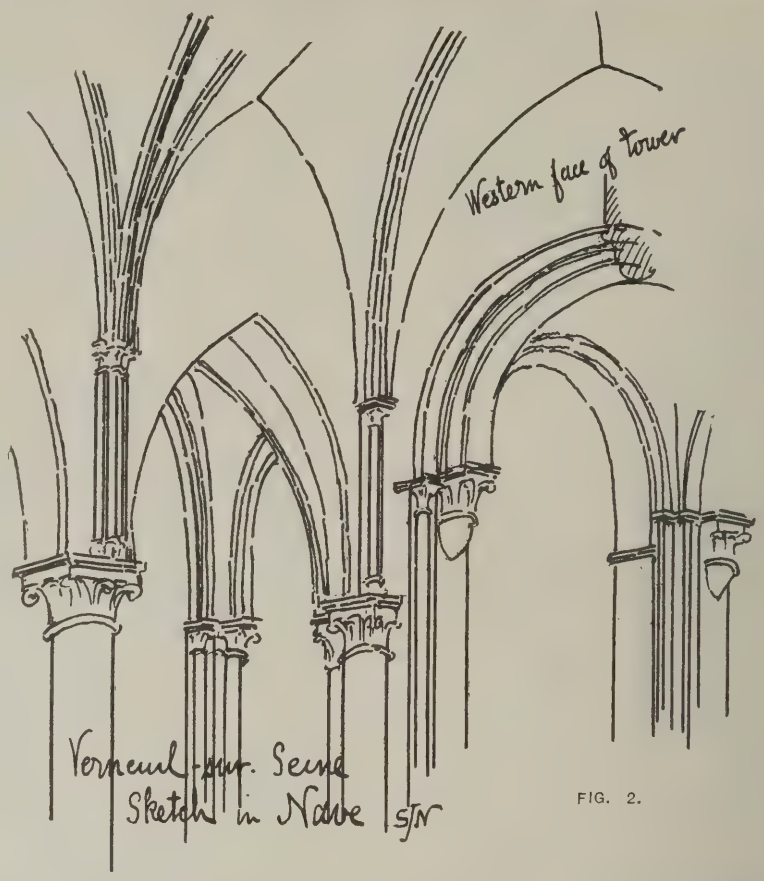


FIG. 2.

In section the nave itself rises well above the aisles, but no clearstory pierced for light appears to have been intended. In style the church is generally of the twelfth century; all the windows and the doors are round-headed, but the nave arcades, as well as the vaulting, are of early thirteenth-century work. The whole of the church is vaulted over, and deeply interested me as affording

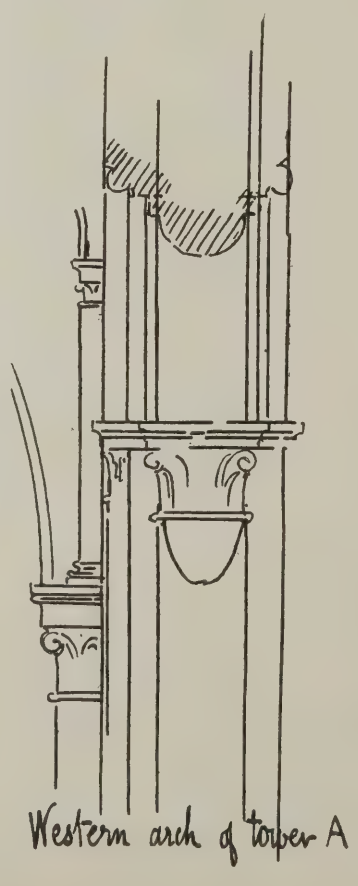


FIG. 1.

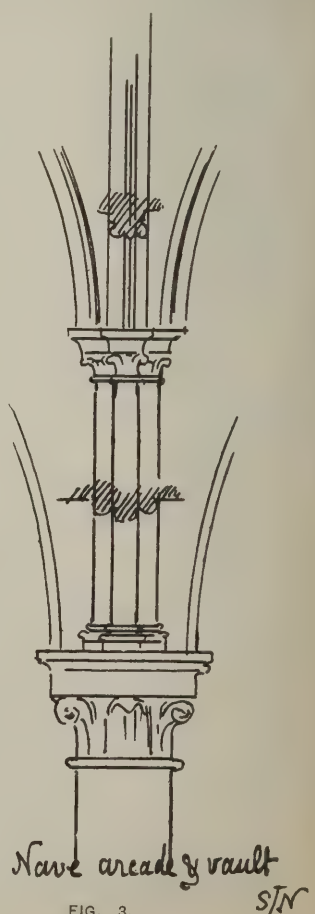


FIG. 3.

* A paper read before the Guild of St. Gregory and St. Luke.

evidence of a native growth and gradual although rapid development.

I will take the arches carrying the central tower first. They are semicircular, springing from well-designed piers and moulded in two orders with large rolls, the inner order springing from carved capitals, carried on the east and west sides by corbels so clumsily formed that there can be no doubt but that originally the shafts were continued to the ground and were cut away to open the view or for stalls (see Fig. 1).

The vault under the tower belfry is almost domical in effect and ribless. There is a small indication of a groin at the springing, but it fades away higher up. The effect is poor, and the designers evidently found it so, for, coming to the next compartment, the sanctuary, we find a change (see Fig. 2).



ST. MARTIN'S, VERNEUIL-SUR-SEINE: INTERIOR LOOKING EAST.

The side arches are pointed, but not of a Gothic section, having a plain flat soffit only relieved by a chamfer; on the east there is a shallow recess, the arch over which almost suggests a wall rib; it is carved, and, like the head of the window beneath it, is semicircular. But there is this great innovation—in the angles are circular pillars, with shafts 11in. in diameter rising from the floor, with well-designed bases placed diagonally on plan, showing that from the first inception they were intended to carry diagonal arches or ribs. These pillars have carved foliated capitals from which spring the diagonal arches which mark or strengthen the groin; they are heavily moulded to correspond in section with the arches which carry the tower (see Fig. 4).

These diagonal arches, although semicircular or elliptic in form, cross one another so as to give the effect of a Gothic vault, and were evidently intended to strengthen the groin and take away the baldness in effect of the tower vault. There is, as I observed, a slightly recessed arch to the east, but no other suggestion of wall ribs; the idea of a framework of ribs filled in with wall work had not been conceived—the idea that was eventually so logically developed in our Northern Gothic.

We now come to the nave with its cylindrical shafts, foliated capitals and pointed arches, with flat soffits, the change of intention becoming evident at the springing of the arches, where the arches and walls are formed of a thickness which allowed a triple shafted wall-pillar to rest on the capitals designed with the intention of carrying the ribs of the vaulting (see Fig. 3). Before describing this vaulting I will here note that the axis of the nave is not in a direct line with that of the eastern portion, which inclines evidently to the south. This may have been owing to an error in the setting-out of the nave, which also caused the north arcade to strike the west wall of the tower some inches beyond the impost moulding of the tower arch, leaving a space on that side which does not occur on the south.

There is a theory that an æsthetic purpose was served by this curved axis, and there is also the theory of a symbolical treatment such as might be appealed to in the collect for Palm Sunday, in which the church prays that He who has "been pleased to manifest the dispensation, of our salvation, even from things insensible" may grant "that the devout hearts of the faithful may profitably understand what is mystically signified." The cruciform plan of the church would of course be in harmony with this idea.



ST. MARTIN'S, VERNEUIL-SUR-SEINE: VIEW FROM THE SOUTH-EAST.

To return to my theme of artistic development. The nave arcade is of three bays on each side, the pillars having plain cylindrical shafts 1ft. 7in. in diameter and 4ft. 7in. high, making with the base and capital a height of 10ft. 10in. The capitals have a square abacus and are well sculptured with a classic reminiscence, one, indeed, suggesting the circular bell of the Corinthian order.

From the capitals spring the longitudinal arches of the arcade, the vaulting of the aisles, and on the nave side the clustered wall pier of three shafts with well-designed bases and foliated capitals, from which grow the transverse and diagonal ribs of the groined pointed vault. There are no wall or ridge ribs; the ribs are delicately moulded, crossing at the intersections without any boss.

There is no hood mould to mark the extrados of the arcade arches, so that the space from the intrados of the arch to the vault is unbroken walling, affording noble fields for vertical mural paintings, leaving the curved surfaces of the ceiling for simple decoration. Such spaces our English churches did not provide, except in the tympanum over the chancel arches.

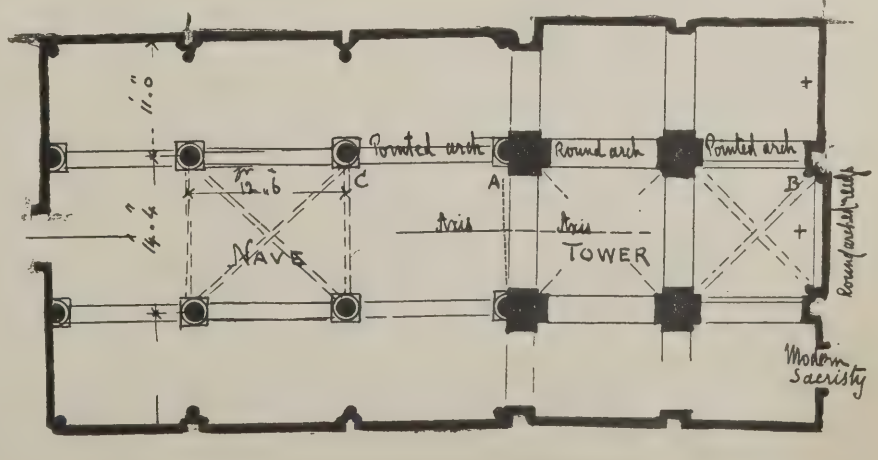
This treatment at Verneuil seems to me to be an inspiration of artists influenced by love of surface decoration in contrast to the framework idea of our Gothic.

The mausoleum of Placidia-Galla at Ravenna, designed for mosaic decoration, may have suggested the idea which afforded such perfect fields for mosaic or painted decoration. More than one idea was brought away from Ravenna, for the very columns of Charlemagne's tomb at Aix were spoil from some ancient structure there.

The point I have wished to emphasize is that we have here in one small church a perfect growth of style with three distinct vaulting systems naturally developed.

First, the tower immature groin; then in the sanctuary the bold and successful attempt to accentuate the groin and strengthen its construction by the heavy diagonal ribs, moulded with a Romanesque section, but giving an idea of a vault which was immediately grasped and worked out most artistically in the nave.

This small church must have been, indeed, when it had its vertical mural paintings and decorated ceiling, a joy to all around. It is still such to those who can appreciate the graces of proportion and form, beautiful curves, light and shade, skilled workmanship in construction and the sculptor's art in the carvings, sanctified by antiquity and long-continued pious usage.



ST. MARTIN'S, VERNEUIL-SUR-SEINE.

AN "ART NOUVEAU" HOUSE IN PARIS.

THE HUMBERT DE ROMANS BUILDING.

THE Parisian who, starting from the Bois de Boulogne or from the Place de l'Etoile, walks along the Avenue Victor Hugo and turns into the Rue Saint-Didier, sees on his left an edifice of very novel aspect. In front, fenced off from the street by an ornamental railing of light construction, there is a courtyard, partly covered, and on the left of this courtyard a building of a character hard to define, but which gives one the idea of a chapel whose distinctive signs are hidden by details thoroughly modern in style. Behind the courtyard and chapel stands a spacious hall, the dome of which dominates all the rest. This hall is fitted up for concerts. Everyone who passes in front of the edifice asks himself: "Whatever can this be? What is this mixture of things so dissimilar—a courtyard, a chapel and a concert hall?" What it has been intended to build at No. 60, Rue Saint-Didier is an edifice of a special kind, comprising two things, namely, a public hall and a *patronage*. (A *patronage* is a sort of school where the children and young people who attend it are taught morality and religion.)

This edifice is called the "Ecole Humbert de Romans," after an ancient monk known by his writings on religious art, and particularly on sacred music. It is also a monk, the Père Lavy, belonging to the Dominican order, who is the originator of this edifice. His idea was that it should be a school of divine art—a sort of religious and popular *Conservatoire*. Thanks to his great influence among wealthy people in Paris, the Père Lavy succeeded in collecting about £40,000 for the erection of his academy. Scarcely was the building finished, however, when for reasons which it would take too long to give here the Père Lavy found himself suddenly banished by episcopal order, and th erefore obliged to abandon his famous religious *Conservatoire* before it had even been inaugurated, and leave it in the hands of laymen. The large hall will be used for concerts—religious and secular. As to the *patronage*, which was to have been occupied by the Père Lavy, it will doubtless serve as a residence for some impressario, or perchance for a poet or a painter having a taste for a dwelling of an original kind. This, however, is a point which concerns us but little. What interests us is the structure itself, the architect of which is M. Hector Guimard, who came into prominence as an exponent of the new architecture when he designed the stations of the Paris Metropolitan Railroad.

The edifice in the Rue Saint-Didier had to comprise a concert hall capable of holding from 1,500 to 2,000 persons. It had to have a gallery. On one side there was to be a stage, with a grand organ at the back of it. Besides the hall itself there were to be the necessary subsidiary buildings, such as the cloakrooms, lavatories, vestibules and so forth. The establishment also had to have a janitor's lodge, a chapel 27 metres long by 8 metres in width for the accommodation of the Père Lavy, and a *patronage* communicating directly with the hall.

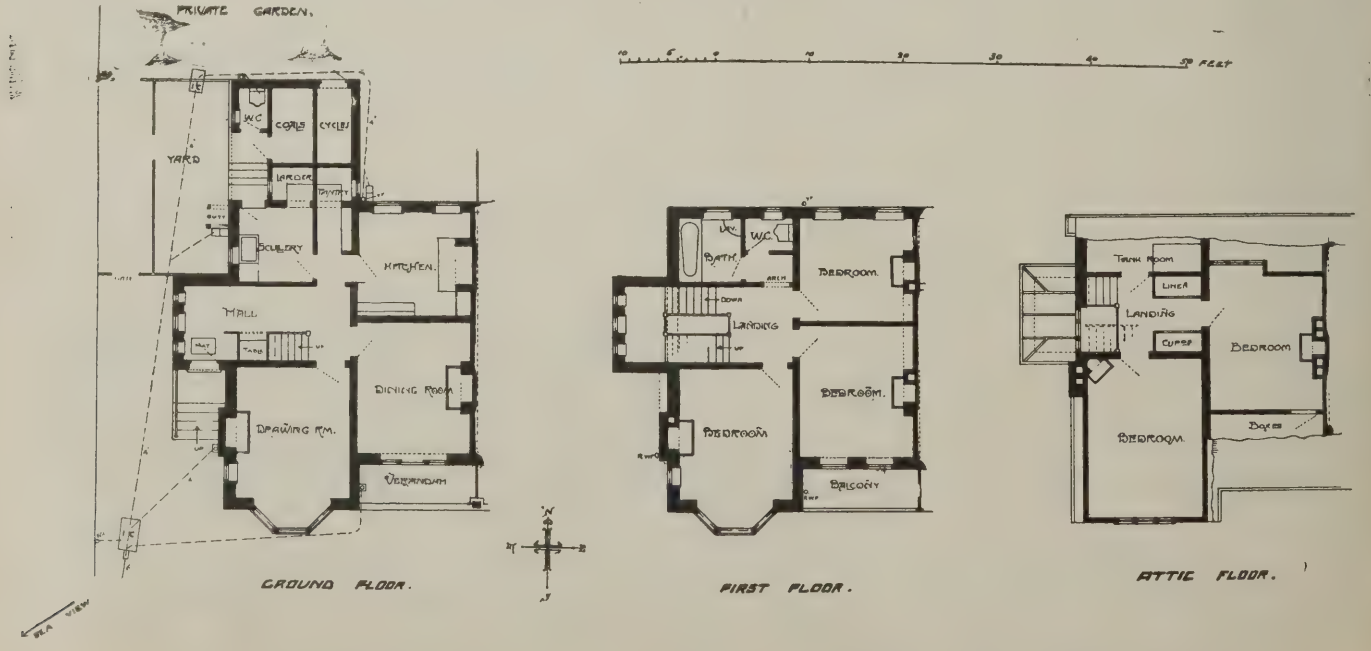
The principal facade, as already stated, is on the Rue Saint-Didier. In front of its central part, however, there is a fairly spacious courtyard, separated from the street by an ornamental iron railing 7ft. high. Entering by the doorway on the right, one first reaches an outer vestibule, in which there is a vestiary, fitted up in such a manner that the garments are hung upon pegs. Two other vestibules lead out of this first one, and the effect is that the hall has wide exits on three of its sides. These vestibules all have a floor in pink imitation marble with a pattern of lilies and golden nenuphars. They are built of stone, iron and cement, like all the lower part of the edifice, and thus are practically fireproof. They communicate with the hall by a continuous row of doors, which arrangement is very convenient and constitutes, moreover, a safeguard in case of fire.

The hall is 29yds. long and 25yds. wide. It is formed of a visible structure, springing from the ground at each corner and spreading in curves like the branches of an immense tree, in a way which gives one somewhat the idea of a corner of a druidic forest. The main branches, eight in number, support a rather high cupola, pierced, like the sides, with bays filled with pale yellow stained-glass, through which an abundance of light finds its way into the hall. The framework is of steel, but the metal is covered with mahogany in all visible places. What is in reality a thin strip of steel thus has the appearance of a thick beam. The pillars, for example, measure as much as 20in. by 15in. at the foot and 11½in. at the top. The principal rafters also measure 11½in. each way, and the principal tie-beams begin with 15½in. and finish with 10in. on each face. Nevertheless, the tie-beam being 35ft. long has a light and elegant appearance, owing to the great distance between the supporting points. Three hundred cubic meters of mahogany were used for the framework, and the result is the most elaborate roof ever conceived by a French architect. The mahogany is polished, has a warm red colour, and stands out from the voussoirs of the ceiling, which are painted orange colour, shaded gradually lighter in the direction of the spectators. These voussoirs, between the rafters, are in plaster, decorated with antique masks and with trumpeters in the corners. A part of the ornamentation has been done in sheet-iron and forged iron platbands. To the arched buttresses electric lamps are fixed in groups of twelve, having the appearance of branches of strange fruit on foliations of iron.

At the bottom of the hall there is a platform or stage, and a fine organ with forty-four stops, built by Abbey. The case of the instrument is of mahogany, in the same style as the hall. The stage is large enough to hold 100 musicians and 120 choristers.

The hall contains 1,150 numbered seats, but there is so much occupied space that an audience of 1,500 or 1,600 could easily be accommodated. The armchairs are roomy, with plenty of space between each row, and they are placed quincunx-wise, in order that everybody may have a clear view of the stage. These chairs have a light cast-iron frame in the form of branches; the seat is of green leather, stamped with curves and volutes. Two staircases lead to the upper floor, which is provided with armchairs similar to those in the hall below. On the left there is a spacious room suitable for use as a lobby or as a promenade. The balcony of this floor is in iron, and it is decorated, like the balustrades of the two staircases, with lyres and musical notes. The acoustic properties of the concert hall are excellent. It vibrates extremely well, and has no annoying echo. It is an ideal hall for stringed instruments and for the voice. It vibrates almost too much for brass instruments, which have to be moderated. M. Camille Saint-Saens gave some valuable hints in this connection, and it was upon his advice that M. Guimard, in order to obtain the requisite sonorousness, planned a proper distance between the ceiling and the roof of the hall, so that they should have a cushion of air between them.

The exterior of the edifice is built of free-stone, with certain parts in millstone, brick and iron. The carving, which is interesting here and there by reason of its fanciful treatment, has been done from models composed by M. Guimard himself, who also designed all the ornamental tiles.



SEMI-DETACHED HOUSES, BOSTON SQUARE HUNSTANTON. H. G. IBBERSON, F.R.I.B.A., ARCHITECT. (See p. 53.)

Views and Reviews.

Lighting by Acetylene.

That acetylene is a very useful illuminant for general domestic purposes in country districts is an undoubted fact. But, like many other comparatively new industries, its progress has been greatly retarded by its own votaries and in a high degree by the ignorance of the manufacturers of the generating apparatus required. A new illuminating gas which is ushered into commercial notice by explosions and fatalities, and governed by panic legislation, is not likely to attract the general public to an examination of its possibilities and undoubted virtues. Now that the subject has received some of the scientific attention and research that it required, we may hope to see the gas take its proper place among our modern lighting mediums.

The author of the handbook under notice states truly that "a good generator is the outcome of experience, and bad ones may be expected at the beginning; but makers will not always see that their machines are bad, and the result is a more widespread condemnation of the gas than would otherwise be the case." This practically summarises the difficulty against which acetylene has had to struggle. If manufacturers will not recognise the faults of their machines it is necessary that the public should be protected against them. And in this connection we would have welcomed a strong expression of opinion concerning the respective merits of non-automatic and automatic generators.

Mr. Dye deals so dispassionately with both types that it is impossible to discover in which direction his sympathies lie, but that he has come to some opinion in his own mind we can scarcely disbelieve. We have never concealed our opinion that the automatic generator was a mistake, and that its supposed advantages were more or less chimerical. The automatic type does not allow for inequalities in generation and consumption. It is difficult in a non-automatic generator of the simple carbide-into-water type to ensure that the carbide shall become thoroughly decomposed. The lumps are too often coated over with the first resulting lime, preventing the water attacking the central mass. If this difficulty manifests itself in a simple non-automatic type how much more likely is it to be troublesome in the case of the automatic pattern, with its cylinders and tubes, all barring the free access of the water?

Again in regard to consumption, the first contact means a great rush of gas, too much for the holder to contain or the burners to cope with. If the apparatus has no governor there is over-pressure at the burners and a smoky flame; with a governor there is danger to the apparatus. If we were called on to advise an intending consumer we should recommend a simple non-automatic plunge-carbide-into-water generator, a purifying chamber (the importance of this cannot be exaggerated), an independent water-seal holder or gasometer capable of containing rather more gas than is required to supply all the burners for a night, and on the house side of it a reliable governor. The plant should have its own shed at a reasonable distance from the house. The owner can charge the generator in the morning and leave the charge in till the next morning, so that the water has plenty of time to permeate and decompose the whole of the carbide. He can make the gas in large or small quantities by regulating the amount of carbide put into the generator. Thus if he has some little social function on one night he will require more gas than on others, and can regulate matters accordingly. The natural pressure exerted by the holder is regulated by the governor, which ensures a steady pressure at the burners. Such a plant is practically identical with a coal-gas works, but on a very much reduced scale.

While in no way as exhaustive as Professor Lewes's work, Mr. Dye's little manual deals very fully with the practicalities of the subject and may be recommended. Being a consumer of the gas, the book would have been more valuable if the author had given us some of his experiences as a user. The information on the different generators in the market is hardly new, and the author's opinion of the various generators would have been more useful than a plain description of their mechanism and working.

"Lighting by Acetylene." A treatise for the Practical Lighting Engineer. By Frederick Dye, M.R.I. London: E. & F. N. Spon, Ltd., 125, Strand, W.C.

Old English Furniture.

In the prefatory note to this book of 110 plates the author says: "For ingenuity and quaintness of design, richness of moulding, or profusion of ornament, the old oak furniture of England and the internal woodwork and plasterwork of our old English mansions of the seventeenth and eighteenth centuries are probably unsurpassed by the contemporaneous work of any other country; while the numerous smaller country-houses still left to us are full of most interesting detail of a more simple kind, but possessing the same originality and quaintness of spirit. It is therefore somewhat surprising that whereas so many valuable works have been published, especially of late, dealing in a more or less pictorial manner with the domestic buildings of this period, no carefully detailed work has hitherto been published particularly devoted to their furniture and internal finishings. It would require many volumes to adequately illustrate the rich abundance of this domestic work throughout the country: the author has therefore selected some of the more simple examples of domestic furniture, panelling, ceilings, &c., together with a few examples of church furniture, for illustration in his volume."

This explains what the book is. The drawings themselves are carefully done, but do not exhibit the most finished draughtsmanship, the freehand being faulty in many instances. Moreover, it is to be regretted that the dates of the several articles are not given, especially as there is not a line of descriptive matter accompanying them. The plates are simply titled thus—old oak cabinet from Poynton, Cheshire; old oak chest at Leek, Staffordshire—to give two examples. However, they form a collection of considerable interest and value, and, as the author naïvely remarks, will doubtless be freely made use of by those "whose business it is to produce similar work in modern times"—that is, commercial furniture firms. In any future edition it would be well if the plates facing sideways were arranged to be looked at from one side only: at present, owing to their being arranged in opposite ways, the head has been turned from one side to the other, a needless trouble.

"Measured Drawings of Old Oak English Furniture, also of some remains of Architectural Woodwork, Plasterwork, Metalwork, Glazing, &c." By John Weymouth Hurrell. London: B. T. Batsford, 94, High Holborn, W.C. Price 42s. nett.



ADDITIONS TO THE ROUND TOWER, BURNHAM. EDGAR S. UNDERWOOD, ARCHITECT.

Additions to the Round Tower, Burnham.—The drawing illustrated above was exhibited in this year's Academy exhibition. The architect is Mr. Edgar S. Underwood.

TECHNICAL BOOKS IN LIBRARIES.*

ENGINEERING EDUCATION.

By Prof. C. F. BURGESS,

THE library, in placing at the disposal of the workman-artisan class the literature best suited to their needs, may accomplish results of inestimable value. "The vast number of workers, so important to the future welfare of the Republic, deserve and are in need of more consideration and encouragement for self-education than are those who constitute what are known as our educated classes." It is to the means of giving aid to this class that I wish especially to direct attention.

Libraries have been and are at the present time very inefficiently dealing with this matter, the following remark recently made by a prominent technical man emphasizing this point: "Instruction in engineering literature is not organised, it is not looked after, it is not cared for, yet it is one of the most important questions. On entering a modern public library one finds excellent reading lists upon almost any topic in history, art, literature and some science, but none on engineering or technical subjects."

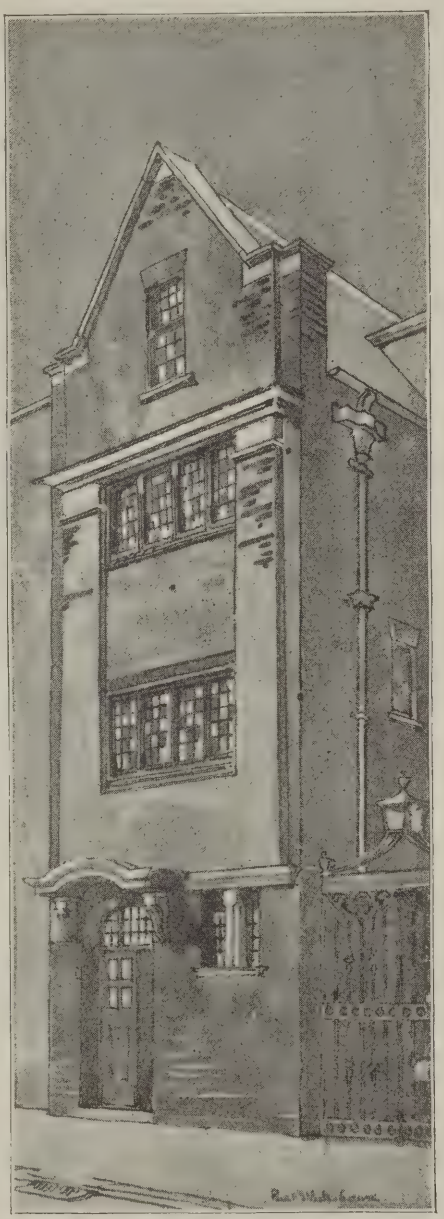
A study of methods of increasing the efficiency reveals some of the causes of inefficiency, principal among which is the lack of a sufficient number of books, and, what is equally harmful, the presence on the shelves of books whose influence is not only indifferent but actually harmful.

Certain branches of engineering and science, especially those capable of pictorial treatment, have been subjected to a flood of literature during recent years. The greater part of such literature, in spite of popularity as shown by calls for it, is not only unreliable and worthless, but is actually harmful and a hindrance to true progress in engineering education. It is to be deplored that those who represent the most advanced learning in their profession seldom indulge in the writing of elementary books, since the financial reward for such work is not comparable to that which may be received in more strictly professional work. The writing of the elementary book is therefore left to the amateur engineer. The public demand may seem to make it necessary to place many undesirable books on the shelves, but it seems to me that just as much care should be used in barring misleading books in science and engineering as in excluding those which are detrimental from the moral standpoint.

In arguing for the organisation and more efficient operation of scientific and engineering departments in the public library, with the view of helping especially the working-class, I am well aware that nothing new or heretofore untried is being presented. I will anticipate some of the objections which may be raised against this system for industrial betterment. It will be argued that certain libraries have maintained technical departments at considerable expenditure of capital and labour, but that little interest has been manifested in them by the people who were to be benefited. It is true that only a small percentage of the industrial workers seem to have an ambition to rise, strange as this statement may seem, and, even if possessed of such, few have the enterprise to do the extra work necessary to further this ambition. The results, however, which can be effected by ministering to the requirements of those who have both ambition and enterprise, even though such number be small at present, is a sufficient argument for carrying on the work. In this way the library may serve as a net spread wide to catch the talent which the country produces.

*Portions of a paper read at the Annual Convention of the American Library Association.

It may be said that manufacturers have installed libraries in connection with their works, and have even offered free instruction to their employees. The indifferent success which such attempts to improve the men have met points to possible failure for public libraries if they take up this work. It has been a matter of common experience, however, that advantages such as gratuitous instruction offered by employers are seldom appreciated by employees, for the majority become suspicious of the intentions, feeling that such efforts are being made in the interest of capital rather than of labour. To the library this is a matter of less moment, as the public may be made to have a feeling of ownership, which is synonymous with a feeling of interest. There may be means whereby the library may increase such interest.



MAURICE HOSTEL, HOXTON, N.
PAUL WATERHOUSE M.A., F.R.I.B.A., ARCHITECT.

An experiment with this in view is to be tried by the public library at Madison, Wis., during the coming winter. It is proposed to have a series of informal talks or lectures, given to the employees of local factories upon technical subjects which may be of interest to them, a small charge to be made for the course. The proceeds are to be used for the benefit of the technical library, books and periodicals being purchased which will be of most service to the contributors. Experience has shown that a free course of lectures will not retain the interest of the audience as will a course in which money is invested, and, in addition to retaining such interest, it is thought that the investment of the proceeds as before mentioned will increase the interest in the library. The lectures are to be given by local engineers and professors of the College of Engineering of the University of Wisconsin. Almost any public library can easily get up such a course of talks, as the technical men of the community will readily lend their assistance.

The library to be a place of study requires a good list of reference-books and journals. Current technical and trade periodicals would be a drawing card, and those who possess, even in a minor degree, the ability of self-education will find here their mental nourishment. In almost every industry there are now technical books and trade journals and catalogues of very high educational value, which may be acquired at a very small cost. A most valuable part of engineering and scientific literature is in such publications, and with bound volumes of the same the librarian might readily compile reading lists for those who desire to look up any particular subject. By suitable scientific instruction the usefulness of the industrial worker to society is increased, his horizon is broadened, the dignity of his calling is developed, and no other agency seems as universally suited for furnishing such instruction as does the public library.

MAURICE HOSTEL, HOXTON, N.

THE new building of Maurice Hostel, illustrated on this page, is situate in Britannia Street, Hoxton, London, N. The hostel is the "settlement" of the Christian Social Union, and the structure contains a meeting-room holding 100 persons, clubrooms, billiard-room, bedrooms for male residents, and a common-room or library. The site, a very awkward one, necessitated some peculiarities of treatment, and the demands of economy dictated the employment of the cheapest possible materials. The external effect is secured by the use of Fletton bricks and stocks, the latter being sparingly used, as they were at the time much more costly than Flettons. The cornice is in cement, the doorway and ground-floor window are of Portland stone, and for motives of cleanliness the base of the building is faced with salt-glazed bricks. The hall has a salt-glazed dado, above which the walls are colour-washed without plaster. The internal joinery is extremely simple, the doors being ledged doors with latches and rim locks, and plastering has been dispensed with wherever possible. Messrs. R. E. Worsley & Co. were the contractors selected in limited competition, and the architect is Mr. Paul Waterhouse.

At St. Mary's Church, Bolton, considerable alterations and improvements are being effected. The church, a cruciform Gothic building, with a tower at the intersection of the transepts, was erected about fifty years ago. The nave, which is without aisles, was seated with pews which ran flush to the walls on either side, and the central passage was partly filled with free benches for the use of the poor. The alterations now in progress at St. Mary's will leave the central passage open and also provide side ways, rendering access to the seats more convenient. New seats of more artistic design and more suitable material will replace the old pews, the church will be refloored, the roof retiled, and the font removed to the south entrance. Other improvements include the renovation of the organ and the recolouring of the walls. Mr. W. Wallace is the architect.

HADDON HALL IN PRINT.

By F. H. CHEETHAM.

". . . . where harmony results
From disunited parts; and shapes minute,
At once distinct and blended, boldly form
One vast majestic whole. No modern art
Had marr'd with misplac'd symmetry the pile."

A GOOD deal has been written from time to time concerning Haddon Hall, but when the student, visiting the old Derbyshire house for the first time, wishes to supplement his own observation by reference to writings which he knows to exist, he will be likely to encounter some difficulty in finding anything more at hand than one or two local guide-books that do not carry him very far.

It is with the object of facilitating the work of those who wish to know something of the architecture and history of Haddon Hall that this article is written. It does not in any sense pretend to be a complete bibliography of Haddon, though it may be taken as an attempt towards one. The task of drawing up a complete bibliography would mean the tabulating of a great mass of ephemeral magazine and newspaper literature, which, though not without profit, is not our immediate concern.

The County Histories.

In all histories of the county of Derby and in all guide-books to the district there is, of course, reference to Haddon Hall. These old county histories are not, however, very accessible, and usually devote more space to genealogy than to architecture. As a rule, they contribute little to the knowledge of the architectural student. But if they are procurable (and they should be in all good public libraries), Glover's and Lysons' histories of Derbyshire can be consulted to some advantage. Glover has a good description of the Hall, and although Lysons gives but a poor description of the building the plans he publishes are extremely correct and minute. These are, first, a basement plan of the north-west corner; second, a ground plan; and, third, an upper-floor plan. These plans were made by the surveyor of the fifth Duke of Rutland to illustrate a litttle privately-printed account of Haddon, written by himself, and were lent to Lysons for his work—the "Magna Britannia," of which this history of Derbyshire is the fifth volume.

Guide-Books.

The ordinary guide-book is, of course, written for general readers, but there are one or two guides sold at Haddon and in the neighbourhood which, being written by antiquaries and men with a thorough knowledge of the old house, are of great value to the student as well as of interest to the tourist.

The most popular of these is the late Mr. A. E. Cokayne's "A Day in the Peak." Its price is 6d. Its whole scope comprises a description of Bakewell Church, Haddon Hall and Chatsworth House. The portion devoted to Haddon comprises about fifty pages, and can be confidently recommended as one of the best guide-books ever given to the public. Mr. Cokayne was a member of the British Archæological Association and of the Derbyshire Archæological Society.

The late Mr. Llewellynn Jewitt, F.S.A., wrote a description of Haddon Hall for the publication called "The Stately Homes of England" which appeared under the names of himself and Mr. S. C. Hall. The article on Haddon was revised and reprinted as an "illustrated guide." Mr. Jewitt's name is in itself a sufficient recommendation for the value of this little book. Some copies are usually to be found on sale in the Hall.

The late Duchess of Rutland wrote an essay on Haddon Hall in the "Quarterly Review" for January, 1890. This essay deals more with the family history of the Vernons and Mannerses than with the Hall itself, but it is of considerable interest. It was afterwards republished as a pamphlet under the title "Haddon Hall; being notes on its history." Added to the original essay is a descriptive paper on Haddon by the Duchess, which appeared in "The Queen" newspaper for December 22nd, 1888. The price of this little book is 6d. It is sold at Bakewell, and in the neighbourhood.

Another local publication which should be read by all those who are interested in the past, is "Selections from the Stewards' accounts preserved at Haddon Hall from 1549 to 1671." These have been published by Mr. W. A. Carrington, of Bakewell, the curator of the Duke of Rutland's manuscripts. They throw a flood of light on the life at Haddon Hall in the time of Sir George Vernon and the early Mannerses. The price is 1s.

Other Books, Papers and Descriptions.

Leaving now those sources of information that are near at hand to all visitors to Haddon Hall, we must pass to those which, if more difficult of access, are at the same time of greater value to the architect than any of those yet mentioned. Even Mr. Cokayne and Mr. Jewitt, writing for the tourist, leave us in ignorance of much we should like to know.

Perhaps the best architectural description of Haddon Hall is that to be found in the paper read by the late Mr. Henry Duesbury before the British Archæological Association at Haddon in 1851. The Association met that year at Derby. The paper will be found, along with a plan showing the approximate dates of the erection of the building, in Vol. VII. of the Journal of the British Archæological Association (1852). Nearly all subsequent writers on Haddon owe much to Mr. Duesbury, though in too many instances they do not acknowledge the debt.

There is a quaint description of Haddon Hall, with a still quainter plan, in the sixth volume of "Archæologia" (1782). It occurs in in the paper entitled "Sequel to the observations on Ancient Castles," by Edward King. It is far from being a trustworthy description, but has some value from the date of its composition. The plan is drawn in single thick lines, and is only valuable as a curiosity. "It is not, indeed, quite so exact as I could wish," says Mr. King, "being drawn only from the eye, and in some degree from memory." Mr. King's description of Haddon, it may be pointed out, does not occur in his great work, "Observations on Ancient Castles," but in this "Sequel" in the sixth volume of "Archæologia."

In his "Churches of Derbyshire," Vol. II., Dr. Cox has a chapter on the chapelry of Haddon.

In Parker's "Domestic Architecture of the Middle Ages," Vol. III., part 2, will be found a short description of Haddon Hall, with a plan.

In 1842 Mr. Douglas Morison published a large folio volume of drawings of Haddon Hall. The book is now difficult to procure. There are twenty-six drawings, which are, however, too bold and free and imaginative to be wholly satisfactory.

The best existing illustrations of Haddon are still to be found in Rayner's work, published in 1836 in two folio volumes. The title-page reads, "The History and Antiquities of Haddon Hall, illustrated by thirty-two highly-finished drawings, with an account of the Hall in its present state, by S. Rayner." This book is unsurpassed. A thin supplementary volume in a paper cover was issued in 1837 by Mr. Duesbury, and contains a plan and measured details of the woodwork, plaster and ironwork in the building. There is a smaller edition of Rayner's work in one volume. The work is, of course, only to be obtained second-hand.

"Haddon Hall, illustrated by W. E. Cooke" was published in 1892. It is a folio volume containing some forty-eight pencil sketches of varying merit.

"Descriptive Notes on the Tapestry in Haddon Hall," by Lady Victoria Manners, is a little book the title of which explains itself. The price is 1s.

Of my own shilling brochure entitled "Architectural and Historical Notes on Haddon Hall" I need only say that it is an attempt in a popular form to supply the deficiencies of other guide-books on the architectural side. It tries to make the Hall interesting to visitors as a piece of architecture.

In Mr. Leyland's "Peak of Derbyshire" will be found some drawings of Haddon by Mr. Herbert Railton. These, with Mr. Leyland's descriptive notes, appeared originally, I believe, in "The Portfolio."

On the mass of information contained in a thousand-and-one newspaper and magazine articles I can only briefly touch.

The R.I.B.A. extra silver medal drawings of Haddon Hall, by Mr. Frank Bellis, were reproduced in "The Building News" of February 11th, 18th, and March 11th, 1887.

The Architectural Association visited Haddon in August, 1888. The professional papers of that date give accounts of the visit, and some of them published illustrations.

In the "Builder" of January 12th, 1889, Mr. J. A. Gotch wrote a description of the building, the result of the A.A. visit, which was admirably illustrated by Mr. T. Garratt. This article was afterwards published as a shilling paper-backed book, bearing on its title-page "A Short Account of Haddon Hall, by J. Alfred Gotch, F.R.I.B.A., with over twenty illustrations by Thomas Garratt, A.R.I.B.A." It has long been out of print.

Mr. R. Morison Marnock wrote a valuable paper on the woodwork at Haddon, which appeared in the "Building News" for April 2nd and 16th, 1875.

In the autumn of 1888 there was a rather fierce discussion in the pages of the "Athenæum" on the panelling in the Long Gallery at Haddon Hall. It would be too long a story to go into details here as to the points of difference raised in the course of this discussion. It will be found in the numbers of the "Athenæum" between August 25th and September 22nd, 1888.

In the BUILDERS' JOURNAL for January 28th, 1896, will be found a paper by Mr. A. T. Bolton, entitled "An Old House," which has special reference to Haddon Hall and Compton Wyniates. Three illustrations of Haddon were given.

The BUILDERS' JOURNAL had also an illustrated article on Haddon on August 29th, 1900.

Imaginative Writers.

Writers of imagination have found in Haddon Hall a native charm and a romantic story that has not been without its inspiration. But it must be confessed that achievement has fallen far short of what we might have expected of it in this direction. Of a local romance that enjoys a great sale the less said the better. But in passing it may be remarked that the whole romantic story of the wooing and flight of Dorothy Vernon will hardly bear the test of criticism. Mr. Duesbury says (and the late Duchess of Rutland quotes him with approval): "In the first place it is difficult to imagine where the ball could have been held; in the next it is not clear that the doorway and the steps leading to it existed . . . . ; and in the third place such a proceeding [as the elopement] was quite unnecessary, as Sir John Manners was in every way an eligible match, and there is not the slightest hint of any quarrel between him and his father-in-law."

Yet it is the story of Dorothy Vernon's flight that gives to Haddon its chief interest

in the eyes of too many people. Sullivan's opera of "Haddon Hall" is founded on this love-story.

It has been said that Mrs. Radcliffe was inspired by Haddon Hall in writing "The Mysteries of Udolpho." It may be so. But there is nothing in the description of the castle of Udolpho that in any way can be said to suggest the Derbyshire house.

More astonishing is the idea that connects Martindale Castle in Scott's "Peveril of the Peak" with Haddon Hall. How this confusion rose I have never been able to make out. The note relating to the arrangement of the apartments in Martindale Castle is, as Mr. Cokayne has pointed out, sheer nonsense. It occurs, it will be remembered, in the early portion of the story, and is as follows: "This peculiar collocation of apartments may be seen at Haddon Hall, Derbyshire, once a seat of the Vernons, where, in the ladies' pew in the chapel there is a sort of scuttle, which opens into the kitchen, so that the good lady could ever and anon, without much interruption of her religious duties, give an eye that the roast meat was not permitted to burn, and that the turnbroche did his duty." Such an experience at Haddon Hall is simply impossible, for the chapel is in the south-west corner and the kitchen far away on the north side. This mischievous note has been the excuse for inserting in some of the illustrated editions of the "Waverley" novels a picture of Haddon Hall as representing Martindale Castle. It is high time this note was withdrawn.

The Baroness de Calabrella's "Evenings at Haddon Hall" has little to do with the building except as regards the title. It is merely a collection of tales supposed to be told there, and written round Cattermole's plates. In reference to Mr. Charles Major's recent novel, "Dorothy Vernon of Haddon Hall," the visit of Queen Elizabeth to the house is, of course, purely imaginary, as are the "folding doors" through which the queen enters the ballroom.

In Philip Gilbert Hamerton's book of verses entitled "The Isles of Loch Awe," published in 1855, will be found a descriptive poem of some length on Haddon Hall. It is illustrated by vignettes from drawings by Mr. Hamerton. It is in this poem that the author of "The Intellectual Life," contemplating the wristlet in the Banqueting Hall, regrets that he has never experienced the pleasures of being drunk.

The contributions to the literature of Haddon that may be found in the printed proceedings of learned societies are mostly inaccessible to the average student, and generally refer more to family history and genealogies than to architectural issues. Mention, however, must be made to two papers that appeared in the Journal of the Derbyshire Archæological Society for January, 1900. One on the "Painted Windows in the Chapel of S. Nicholas, Haddon Hall," by the Rev. Charles Kerry, contains perhaps all that can be said on that subject, and is illustrated by five exceedingly good photographs. The other paper, by Mr. W. A. Carrington, of Bakewell, entitled "Haddon: the Hall, the Manor and its Lords," contains little of an architectural character, but, as the most authentic account of the Lords of Haddon that has yet appeared, cannot be passed over. It also materially adds to our knowledge of the manner in which the house was furnished in the seventeenth century.

It is hardly necessary to direct anyone how to get to Haddon Hall; but comparatively few people approaching the house from the Bakewell side know of the beauties of the old road, which brings you down upon the mansion from the hillside above. It is not a road for driving or cycling; but for pedestrians who love quietude and shade it will be found a delightful change from the hot dustiness of the great high road from Bakewell to Rowsley. Besides this, you approach Haddon in the way it was approached in ancient days, finding yourself in front of the great gateway under the north-east tower.

In conclusion, let me quote the words of Prof. Roger Smith in his handbook of Gothic architecture: "Probably nowhere in England can the growth of domestic architecture be better studied, whether we look to the alterations which took place in accommodation and arrangement, or to the changes which occurred in the architectural treatment of windows, battlements, doorways and other features, than at Haddon Hall."

A.A. PRIZE LIST, 1901-02.

A.A. travelling studentship, value £25, and silver medal, L. G. Detmar; second prize, value £5, G. S. Nicol.

A.A. medal, value £10 10s., not awarded.

Banister Fletcher bursary, value £26 5s. and medal, A. E. Richardson.

Andrew Oliver prize, value £3 3s., W. J. M. Thomasson; second prize, value £2 2s., H. Kenchington.

A.A. scholarship, value £4 4s., W. A. Hodges.

Studio, Division I.

Drawings of old work, prize value 10s. 6d., J. F. Schneider. Study of ornament, prize value 10s. 6d., H. L. Samson. Construction, prize value 10s. 6d., H. L. Samson.

Studio, Division II.

Design, prize value 10s. 6d., I. S. Davies. Time sketches, prize value 10s. 6d., A. E. Bullock. Study of ornament, prize value 10s. 6d., A. E. Bullock. Construction, prize value 10s. 6d., A. E. Bullock.

Perspective, prize value 10s. 6d., H. L. Samson.

Elementary Class of Design.

Prize value £3 3s. and bronze medal, H. L. Samson. Certificates, E. G. Stevenson and H. Hyams.

Advanced Class of Design.

Prize value £5 5s., bronze medal and pass for modelling class, E. Gunn.

Certificate and pass for modelling class, E. G. Theakston.

Passes for modelling class, L. Lee, A. G. Scott and J. N. R. Vining.

Order of Merit.

Lectures, Division I.

Greek and Roman Orders: (1) E. G. Stevenson (book prize); (2) J. T. Sifton; (3) C. R. Pinsent.

Elementary Construction: (1) W. A. Hodges (book prize); (2) H. F. Murrell; (3) H. D. Aubrey.

English Architecture: (1) C. J. Goodwin (book prize); (2) H. F. Murrell; (3) H. J. Wyeth.

Mediæval and Renaissance: (1) W. A. Hodges (book prize); (2) H. F. Murrell; (3) C. J. Goodwin.

Elementary Physics, Formulæ and Calculations: (1) R. E. Stewardson (book prize); (2) W. A. Hodges; (3) T. W. Watkins.

Plane and Solid Geometry: (1) S. T. Hennell (book prize); (2) C. R. Pinsent; (3) R. H. Greig.

Lectures, Division II.

Materials, their Nature and Application: (1) R. J. Tyndall (book prize); (2) G. Church; (3) B. B. Hooper.

Construction: (1) G. Church (book prize); (2) C. M. Crickmer; (3) A. Wood.

Drainage and Water Supply: (1) D. Anderson (book prize); (2) B. B. Hooper, B. Greig and A. Potter. (3) G. M. Page.

Ventilation, Lighting and Heating: (1) G. M. Page (book prize); (2) D. Anderson; (3) B. Drummond.

Professional Practice: (1) B. Greig; (2) B. Drummond; (3) W. J. Davies.

Mensuration, Land Surveying and Levelling: (1) D. Anderson (book prize); (2) H. J. Rippon; (3) W. H. Baines.

ORDNANCE SURVEY.

THE annual report on the Ordnance Survey presents a satisfactory record of steady progress. The old discredited 4in. map has been laid on the shelf, and, as Col. Duncan Johnston, the Director-General of the Survey, says, "there is now available to the public a 1in. outline map of the whole of the country, prepared on one uniform system and with its principal details nearly up to date." It was resolved in 1893 that the 1in. map should be revised every fifteen years. The first revision being now complete, the second has been begun "and is proceeding at a rate such that about one-fifteenth of the whole country will be revised annually." Commenting on the matter, the "Times" says: "This is certainly a vast improvement on the dilatory methods formerly adopted by the Survey, or perhaps imposed on it by a close-fisted Treasury; and, if the opportunity afforded by the revision is taken to improve some of the details in which the coloured map is still deficient, we shall in the end obtain a 1in. map to which no serious exception can be taken. The principal defects to which we refer are those of indistinctness in the printing and inconspicuousness of the contour lines. These may be inherent in the process of reproduction employed; but, if that is so, a comparison with the maps issued by the French Ministry of the Interior will show that far better processes are available."

Speaking of the coloured maps on the 1in. scale, Col. Duncan Johnston remarks: "The sale of these maps appears to be on the increase, but is still not very large. It is believed that they are appreciated, when known, but the general public seems to be unaware of their existence, although great pains have been taken to make it known by means of Press notices, leaflets, publication reports, &c." The maps are sold either through agents appointed in 116 of the principal towns of England, or through about 500 head post-offices throughout the country. The sales through the post-offices, however, which on any adequate and properly organised system ought surely to be the most numerous, "have hitherto been small, and until recently diminishing."

As the "Times" points out, the explanation is that, whereas the local agents are supplied with the maps at a discount of 33⅓ per cent., are allowed a small credit stock of the maps of the district, are allowed to exchange obsolete maps for newly revised maps whenever necessary, and are supplied with the maps free of all charge for carriage and packing, the post-offices enjoy none of these advantages. Until quite lately no single map was kept at the post-offices, so that the purchaser had to order each map as he wanted and to pay full price for it, together with 3d. additional for postage. Thus, whereas at an agent's the purchaser could see the map before he bought it, and could buy it for 10d., if the agent was content with a profit of 25 per cent., he must pay 1s. 3d. for it at the post-office, and must pay for it before he had seen it.

Col. Duncan Johnston notes: "In July, 1901, framed specimens were sent to all head post-offices in Great Britain, except those in towns at which there is an Ordnance Survey agent, and the Treasury sanctioned a reduction in the charges for posting and packing. Since this has been done, the sales, though still small, show a marked improvement, those for 1901-2 amounting to £192, against a total of £88 for the previous year."

All this is good as far as it goes, but the fact remains that "a purchaser must still pay 1s. or more at the post-office for a map which an agent can afford to sell for 10d., and so long as that is the case it seems hopeless to look for any very large extension of the sale of maps through the post-office."

New Patents.

These patents are open to opposition until October 13th.

1901.—Cranes.—15,666. T. D. HOLLICK, Mountnessing, Brentwood. The crane consists of a horizontal beam mounted on legs which run on rails and having on its underside a travelling carriage. This carriage carries a wheel around which the hoisting rope passes from another wheel at the end of the beam, and by these means the load can be lifted and carried from place to place with great ease and rapidity. All is of lattice-work steel construction.

Plaster Mouldings, Embellishments, &c.—15,772. G. B. HALL, "Valkyrie," Colney Hatch Lane, Muswell Hill, London, N. The plaster is delivered in a continuous stream between endless bands and compressed between rollers so as to produce plain, fluted or ornamental slabs, &c., which are then cut into lengths as required; or delivered to a series of moulds travelling with an endless apron.

Incandescent Gas Lighting.—17,507. C. SCOTT-SNELL, 51, Victoria Street, London, S.W. The burner has compressed air and gas-inlet jets so arranged as to get the maximum temperature and brilliancy. With a gas consumption of 15ft. per hour it is necessary to compress only 3ft. of air.

Sewage Troughs.—19,143. A. WAKEFIELD, 39, Victoria Street, Westminster, S.W. Carriers used for distributing sewage on to land are usually troughs laid in sections, one side being made lower than the other so that the sewage may overflow it. These troughs are usually made in three parts, but by this invention all is made in one piece, the channels and cheeks being integral.

Steam Pile Driving.—19,524. W. A. SISSONS, Hedon Road, York. Owing to the fall of the ram or monkey requiring to be varied as the piles are driven, holes are bored in the leaders, which requires the attendance of someone to move the staple out of one set of holes into another, as well as someone else to pull the cord for again connecting the ram to the chain. By this invention both these persons are dispensed with, as the device is automatic, a detent lever and other means being employed.

Paving Streets.—19,889. T. A. BELL, 11, Warbreck Road, Aintree, Liverpool. Instead of pitch or cement, sulphur is used as the binding agent. The setts are laid in the ordinary manner and the spaces between them are then filled with gravel: finally the liquid sulphur is poured in to bind the whole.

"Maturing" Portland Cement.—22,601, J. S. RIGBY, Bagot Street, Wavertree, Liverpool. The cement is cooled by passing it through a conveyor, and is then subjected to cold and moist carbonic acid gas and air. The free lime is thus hydrated so that the cement may be used at once, thus avoiding a long process of maturing.

The following specifications were published on Thursday last, and are open to opposition until October 20th next. A summary of the more important of them will be given next week.

1901.—16,230, DUCKWORTH, mixing apparatus. 16,486, GREENLEY & DAY, producing designs or surfaces for enamelling. 16,846, HENVIS, ventilators. 17,372, DUCKETT, ovens for kitchen ranges. 18,140, WADSWORTH, water-carts. 18,632, SMITH, formation of the socket parts of drain-pipes. 19,915, BODY, joiners' ploughs. 20,150, WHITAKER & WHITAKER & CO. LTD., seats of water-closets. 20,223, MUIRHEAD, band-sawing machines. 20,246, ALDOUS & ALDOUS, ventilating sewers. 20,390, CROSS, sewers. 21,741, KLABER, stencil sheets. 25,441, HOFFMANN, automatic fire extinguishers.

1902.—435, WRIGHT & WRIGHT, joint for sewer and other pipes. 4,849, CHADWICK, water-closet seat hinges. 11,381, O'BRIEN, ventilating machine to facilitate the ventilation of tube railroads. 11,941, HUNT, fireplaces. 12,091, SCHROEDER, window ventilators. 15,318, WAXIN, cement or artificial stone. 15,427, SPENGLER, spring hinges for doors.

Bricks and Mortar.

Aphorism for the Week.

Art, in all its forms, is bounded on one side by the practically useful and on the other by unsuccessful attempts at art.—TOLSTOY.

Our Plates. THE house near Wrotham in Kent is built on an elevated site overlooking a wide expanse of beautiful country. The proprietor has given the architects more than the usual latitude, and there is a good deal of quiet panelling within the house to give quality to the rooms, as well as other accessories that are likely to add to the comfort of the occupants. The architects are Messrs. D. B. Niven and H. Wigglesworth, F.F.R.I.B.A., of Gwydir Chambers, 104, High Holborn, W.C.—The hospital at Constantinople is now being erected for a British committee, and will be chiefly used by British sailors. The materials are Trieste stone, the roof is of Marseilles tiles, and the turrets are covered with copper The flooring throughout of the passages is marble, and that of the wards teak. The building is situated near the Galata Tower, in the old part of Constantinople. The accommodation is for fifty patients, nearly all being single-bed wards. The Sultan has granted special permission for the entrance of all materials used free of Customs duty. Mr. H. Percy Adams, who is the architect of the hospital, has had the assistance of Mr. J. Herbert Willis, of His Majesty's Office of Works, in the superintendence of the erection of the building. The cost of the building will be about £30,000. The perspective drawing which we illustrate was exhibited in this year's Royal Academy.

A City Improvement. THE Corporation of the City of London have in hand a scheme of some importance for widening Lower Thames Street, in a stretch from Botolph Lane to Fish Street Hill, which extends to Monument Square and Pudding Lane. An extensive block of premises is now in course of demolition. Lower Thames Street, which is congested with traffic, is only 18ft. wide in the part of the roadway mentioned, and it will be increased to 60ft.; and the width of Pudding Lane (7ft. 6in.) will be doubled. Old historical landmarks are fast disappearing in the City as well as in the Metropolis, and when the improvement scheme is completed and quaint old shops are supplanted by imposing commercial premises, one will hardly be able to recognize the Pudding Lane in which the Great Fire of London had its origin. The baker's shop in which the fire commenced was pulled down about fifteen years ago, and the site is covered by large commercial premises. The Monument was erected to commemorate the fire, which extended from the Tower to the Temple Church and from the north-east gate to "Pye Corner," Cock Lane, Holborn, where Macaulay states that Dr. Johnson used to go "ghost-hunting." The Monument is 202ft. high, that being the distance of its base from the spot where the fire commenced.

Brenzett Church. BRENZETT CHURCH, which has undergone restoration, was reopened recently. Situated almost in the centre of Romney Marsh, the church dates from the Norman Transition period. Belonging, in the reign of Richard I., to the Abbey of Guysnes in Flanders, it seems from historical records to have suffered in the reign of Henry VIII. during the suppression of religious houses. The church itself is dedicated to a Saxon saint and virgin, St. Eanswide, or Eanswith, who died about 650 A.D. At the present time the most interesting part is the old Fagge chapel, in which a fine monument is to be seen of two Fagges, the whole being of Welbeck marble. The church was badly in need of repair both inside and out, and the south-east buttress of the chancel was settling badly, causing the masonry of the main walls to go with it. The stone tracery of the windows has all been carefully repaired, and other stonework that was decayed with age has been replaced with new. The steeple, the most important part of the work, was found to be 2ft. 6in. out of the perpendicular, while the bell storey had to be strengthened, necessitating the reconstruction of the spire. The whole of the timbers were taken down to the plate level and a new centre-post put in, the spire being covered with new oak boarding and shingles. The interior of the edifice has been cleaned and re-decorated, while the pews have also been re-varnished, the work reflecting great credit on Mr. W. H. Bourne, of Woodchurch, and the architect, Mr. Lacey, of Ashford.

The Black Hole Monument. THE Viceroy's gift to the city of Calcutta, a monument to those who died a century and a half ago in the Black Hole in which Suraj-ud-Dowlah incarcerated his prisoners during the short while he was in possession of Calcutta before his final overthrow at Plassey, is rapidly approaching completion. The design selected is the second of the two models put up last winter for Lord Curzon's approval. It is of white marble, and the sides of the pedestal will bear suitable inscriptions of the names of those who perished in the Black Hole. The monument itself is now in position in Charnock Place, just opposite to the Custom House, at the point of junction with the road by Dalhousie Square where Writer's Buildings are situated. This is as near to the real site of the Black Hole as it is possible to get. The site itself is included in the premises of the Custom House. The monument being in position, the engraving of the tablets will take some time yet to complete. It is hoped that all will be ready for the formal opening ceremony when His Excellency arrives in Calcutta. It was to make room for this monument that Sir Ashley Eden's statue was removed and erected in a nook filched for the purpose from Dalhousie Square, but anyway an obelisk to the memory of the Black Hole was in the place before Sir Ashley's statue which replaced it, and old Holwell of Black-Hole fame, whose name is given to the new monument, is only resuming his own.

From a Book List. IN "Belinda's Book List" for last month (Hatchard's) the following appeared:—"Max Beerbohm, in criticising English architecture, once humorously said that one of the chief dangers of railway travelling near London was that the traveller putting his head out of the window might see the Crystal Palace. London architecture needs a censorship. The house in Piccadilly which needs the smallest apology architecturally is an hotel. Devonshire House is a blot. The fountain at Piccadilly Circus is another. There are exceptions. Two of the finest buildings in London I have never yet heard referred to—one is the Insurance Office at the bottom corner of St. James's Street, opposite Marlborough House, and the other is Messrs. Standens' premises, in Jermyn Street, which are modelled upon a Florentine palace." The criticism may be taken for what it is

worth. It is somewhat amusing, however, to hear Mr. Gilbert's fine work in Piccadilly Circus described as a "blot"; if nothing else did, this opinion would at least assure us that the critic knew very little about what she or he is writing.

Technical Education in Germany.

The German Ambassador has supplied the Council of the Association of Technical Institutions with additional statistics in regard to technical high schools in the German Empire. No limit of age is fixed for admission to these institutions, but the conditions of entry are such that they very rarely contain any students under eighteen years of age. This is secured in the case of matriculated students by requiring them to produce the leaving certificate which is usually obtained between the ages of eighteen and nineteen. Non-matriculated and casual students are not admitted before they are eighteen. The figures refer to the winter session 1901-2, except in the case of Dresden, where they refer to May, 1902. In the Architectural Division of the technical high schools at Aachen, Berlin, Darmstadt, Dresden, Hanover, Karlsruhe and Munich the number of first-year students was 320; second-year students, 266; third-year students, 234; fourth-year students, 196; students who had attended more than four years, 105; total, 1,440. The numbers attending the Civil Engineering Divisions at the same institutions were:—First-year students, 407; second-year students, 395; third-year students, 321; fourth-year students, 323; students who had attended more than four years, 195; total, 2,257. The numbers in the Mechanical and Electrical Engineering Divisions were:—First-year students, 1,203; second-year students, 1,039; third year students, 898; fourth-year students, 860; students who had attended more than four years, 434; total, 5,503.

An Italian Royal Monument.

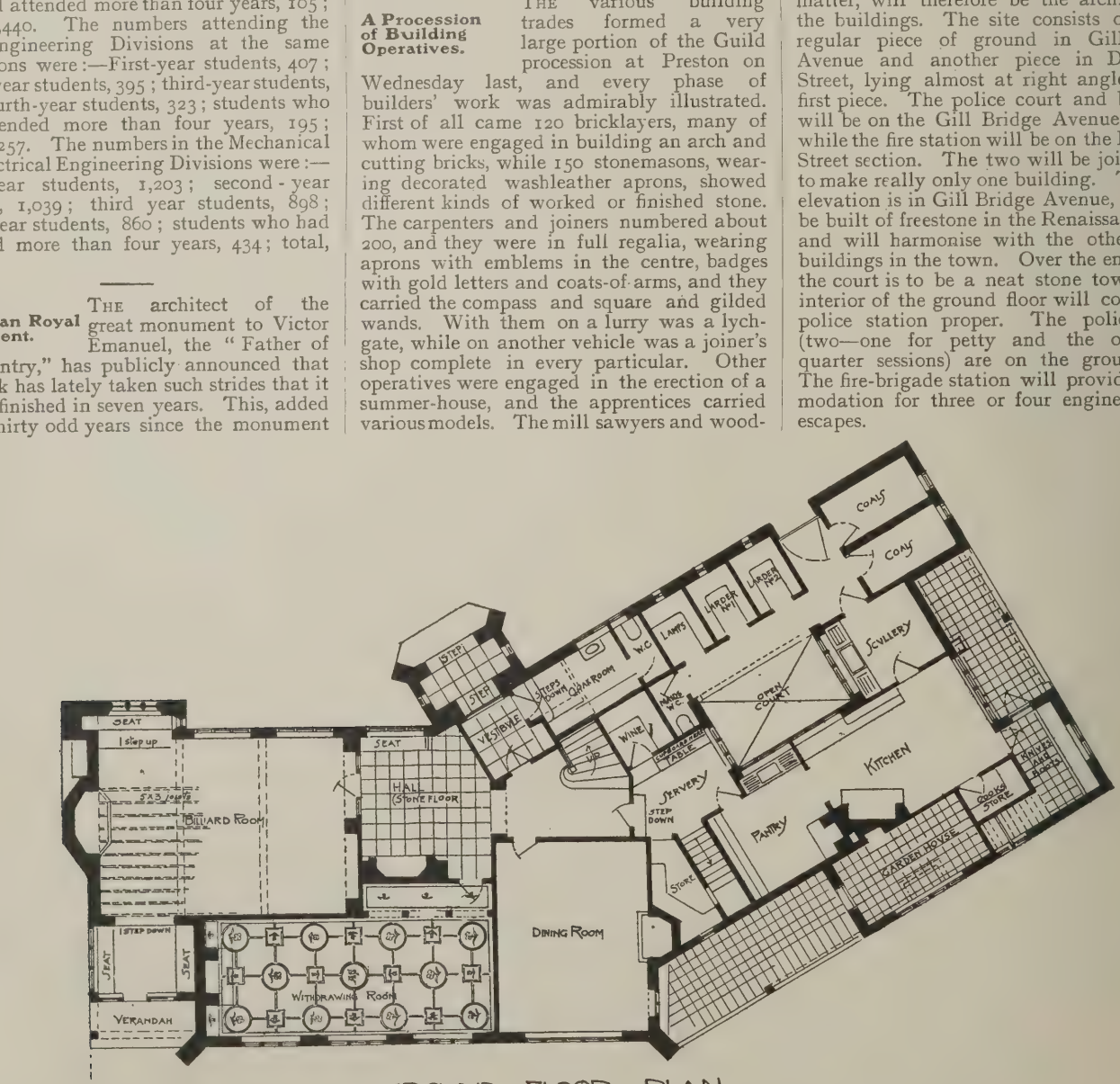
The architect of the great monument to Victor Emanuel, the "Father of his Country," has publicly announced that the work has lately taken such strides that it will be finished in seven years. This, added to the thirty odd years since the monument was begun, seems a great time to modern ideas, especially as the money was forthcoming from the first. The new monument stands at the extreme end of the historic Corso, which before closed in a medley of odd buildings. Many of these have already been torn down to make the necessary space, and others are in process of demolition, so that the colossal monument will have in front the stretch of the Corso to the Piazza del Popolo on one hand, the Capital and the church of the Are Cœli, with the majestic sweep of steps, and on the other Trajan's Forum, with its unrivalled storm-beaten colums and the twin churches at its northern end. The monument will be a grandiose building of porticoes, Corinthian columns, statues and bas-reliefs, which will house two or more museums, and perhaps a library, surmounted by a magnificent triumphal group of horses and chariot driven by Victory—the whole rising about 290ft. In front, standing well out from the building, on its own pedestal, and approached by steps, will be an equestrian statue of the Re Galantuomo. The taste of the whole has by some critics been seriously questioned, if not condemned; but no one can deny that the effect at the end of the Corso, the centre of the life of the city, will be very grandiose.

A Procession of Building Operatives.

The various building trades formed a very large portion of the Guild procession at Preston on Wednesday last, and every phase of builders' work was admirably illustrated. First of all came 120 bricklayers, many of whom were engaged in building an arch and cutting bricks, while 150 stonemasons, wearing decorated washleather aprons, showed different kinds of worked or finished stone. The carpenters and joiners numbered about 200, and they were in full regalia, wearing aprons with emblems in the centre, badges with gold letters and coats-of-arms, and they carried the compass and square and gilded wands. With them on a lurry was a lych-gate, while on another vehicle was a joiner's shop complete in every particular. Other operatives were engaged in the erection of a summer-house, and the apprentices carried various models. The mill sawyers and wood-turners, the flaggers and slaters, the plasterers and plumbers, the house painters and decorators, all made a brave show with their lorries, which carried special models of their work, in addition to forming means of progression for those who were engaged in business operations. The engineering section was of exceptional length, the magnitude of the operations attracting attention by their interesting diversity.

Sunderland Competition.

The Sunderland Corporation having offered premiums of £100, £50 and £25 for plans for the new police station and fire brigade buildings they intend to erect, they received twenty-five competitive plans. Mr. J. S. Gibson, F.R.I.B.A., was appointed by the president of the Royal Institute of British Architects to adjudicate these plans at the request of the Corporation, and his award has resulted as follows:—£100 premium, Messrs. W. & T. R. Milburn of Sunderland, associated with Messrs. Wills & Anderson, London; £50 premium, Messrs. Stones & Stones, Blackburn, associated with Messrs. Edwards & Sproat, Glasgow; £25 premium, Mr. Alfred E. Corbett, of Manchester. Messrs. W. & T. R. Milburn, and the London firm with whom they are associated in this matter, will therefore be the architects for the buildings. The site consists of an irregular piece of ground in Gill Bridge Avenue and another piece in Dun Cow Street, lying almost at right angles to the first piece. The police court and buildings will be on the Gill Bridge Avenue portion, while the fire station will be on the Dun Cow Street section. The two will be joined so as to make really only one building. The main elevation is in Gill Bridge Avenue, and will be built of freestone in the Renaissance style, and will harmonise with the other public buildings in the town. Over the entrance to the court is to be a neat stone tower. The interior of the ground floor will contain the police station proper. The police courts (two—one for petty and the other for quarter sessions) are on the ground floor. The fire-brigade station will provide accommodation for three or four engines and fire escapes.



GROUND FLOOR PLAN

HOUSE AT WROTHAM, KENT. NIVEN AND WIGGLESWORTH, ARCHITECTS.

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Supplement to
THE BUILDERS' JOURNAL AND ARCHITECTURAL RECORD,
Wednesday, September 10th, 1902.




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Keystones.

The Bells of St. Paul's Church, Wooburn, Bucks, have been thoroughly restored as a memorial of the Coronation.

A New Wesleyan Church at Helmsley has been erected partly on the site of the old structure at the cost of about £2,000. It accommodates 330 persons. The architects were Messrs. Hornsey & Monkman, of York.

A New Hospital for Infectious Diseases is to be erected at Portsoy from designs by Mr. William Kelly, architect, of Aberdeen. The site of the hospital is to the west of Portsoy, on ground presented by the Countess of Seafield, facing the south on a gentle slope falling to the sea. The hospital will provide accommodation for twenty patients.

Norman Work at Chatham.—It has been found impossible, after all, to preserve all the old Norman work at St. Mary's Church, Chatham, the nave of which is being rebuilt, owing to the decayed condition of the masonry. The centre arch has been taken down, but its columns are to be reconstructed of the old Norman material. The two beautiful Norman side arches will remain intact.

A New Chancel to the Parish Church of Richmond is to be erected as a memorial to the late vicar, Canon Proctor. It is well known that he had set his heart on this improvement, in addition to a chancel screen and rood, and he collected over £3,000 for the purpose. The proposal to erect a screen met with some opposition, a faculty was refused, and the matter was in abeyance at the time of Canon Proctor's death. It is now suggested by the architect who has been consulted, Mr. Bodley, R.A., that a larger and more commodious chancel should be built, with aisles and vestries, at a cost of £7,000, by which the accommodation of the church would be increased.

India's Consulting Architect.—The object of creating the new appointment of consulting architect to the Government of India is to place at the disposal of both imperial and provincial authorities the expert advice not only of an architect but of an artist in connection with the construction of public buildings. Under present circumstances, either a public building is run upon lines of economy, and not of beauty, by the Public Works Department, whose officers are engineers and do not profess to be architects, or if the building is of a special kind the design of the façade is sometimes thrown open to outside competition with no other inducement than a prize of a very few thousand rupees for the winner. A beautiful building is not always necessarily more costly than an ugly one.

Palestine Exploration.—Mr. J. D. Crace, hon. secretary, writes: "The excavations at Gezer by the Palestine Exploration Fund, recently begun under Mr. Stuart Macalister, are already yielding important results. A portion of the city wall, of very ancient character, was found within the first few days; and since then a discovery has been made which carries back the history of the site to a remote antiquity. This is a cave, artificially cut, about 30ft. long, made to serve as a crematorium, with a chimney cut in the rock. The floor is thickly overlaid with calcined human bones. Above this stratum of cremated remains are unburnt remains of later interment, the bodies having been buried in the contracted position. Pottery, much of it perfect, occurs largely in both strata. Professor Alexander Macalister, of Cambridge, as an anthropologist, holds the opinion, confirmed by the finds of pottery, that the remains belong to two distinct races, both pre-Israelite."

The Town Hall, Batley, was destroyed by fire last week. It was an old building, and the Council have been considering plans for the erection of a new Town Hall.

A New Reredos at Wotton-under-Edge Church, Gloucestershire, has been erected. It is constructed of English oak, and the detail is of fourteenth-century character. It has been executed by Mr. H. C. Frith, of Gloucester, under the immediate supervision of the architect, Mr. Walter B. Wood, of Gloucester.

The Chancel of St. Stephen's, Clewer, near Windsor, is being decorated. The work is now completed, with the exception of new paintings which are to replace the mosaics on the east wall and the canopies over them. The chancel was the first portion of the church to be built, and it was completed in 1871. The internal decoration has cost considerably over £1,000. Two windows—to St. Edith and St. Chad—have been placed in the south aisle.

Crewe Municipal Buildings' Competition.—Forty-five sets of competitive designs for new municipal buildings were received. Messrs. Woodhouse & Willoughby, of Manchester, were the assessors, and on their recommendation the first prize has been awarded to Mr. Henry T. Hare, F.R.I.B.A., London. The second prize has been divided between Mr. Albert Dixon, of Leeds; Messrs. Banister, Fletcher & Sons, of London; and Rodney & Denning, of Bristol. The estimated cost of the new buildings is £14,000.

The New Rose Window in Westminster Abbey, in the south transept, was completed before the Coronation as a memorial to the late Duke of Westminster, but has escaped general notice. The cost has been covered by a public subscription, which amounted to nearly £2,400. The general subject is "The preparation of the world for Christ's coming," and there are twelve lower lights representing the early Christian preachers and martyrs. The design is by Mr. G. F. Bodley, R.A., and the colours chosen are much lighter than those of the old window in the south transept, in order to improve the illumination of the Poets' Corner.

Municipal Dwellings in St. Pancras.—At the St. Pancras Borough Council meeting last week it was reported that a loan of £25,436 had been sought from the London County Council for the purpose of defraying the cost of providing housing accommodation on the Great College Street site for persons displaced by the St. Pancras (Brantome Place and Prospect Terrace) improvement schemes. A tender to erect the block of artizans' dwellings, amounting to £17,734, had been accepted, and building operations were actually commenced. This will be the first block of industrial dwellings erected in the borough under the Housing of the Working Classes Act. The scheme, of which it forms part, was originated thirteen years ago.

A Discovery of Prehistoric Remains has been made at the fishing village of Ambleteuse, near Calais, by Professor Dharvent, of the Anthropological Society of Paris. In connection with works of sea-defence the removal of sand on the dunes at Ambleteuse was being carried out to a depth of 20ft., and this revealed the presence of an ancient soil with many evidences of prehistoric man. Further excavation under Professor Dharvent proves this to be one of the most important neolithic stations yet discovered. It is more than 150yds. square, and includes what was undoubtedly a large workshop for the making of flint swords, knives, arrow and javelin heads, &c., numbers of which were found.

Mr. C. H. Brodie (who has recently removed his office to 15, Hart Street) has been appointed surveyor to the National Provincial Bank of England, Ltd.

Mr. W. B. Gwyther, F.R.I.B.A., of the Public Works Department, Bengal Secretariat, Calcutta, has been appointed a Commissioner of the town, and also a member of the general committee of the Corporation.

American Translation.—The Fairbanks Company, of 78-80, City Road, London, E.C., has issued a booklet giving a number of tables for converting American dollars into English pounds, ranging from 1 cent. to 5,000 dollars. In addition it gives a few tables of the metric system and some rules for converting into English measures and weights. The price of this useful little book is 6d.

A New Wesleyan School at Rodborne is being erected in Telford Road at a cost of about £500. Messrs. Tydeman Brothers are the builders, and Mr. G. Davies is the architect. It is 40ft. by 30ft., of Gothic design, with cathedral glass leaded lights. The interior walls will be stuccoed, and the roof constructed of clean white varnished deal. Seating accommodation is provided for about 200 scholars. There are also large and small vestries.

A.A. New Premises Fund.—The following are additional donations to the Architectural Association New Premises Fund:—

	£	s.	d.
Amounts already announced -	4,318	6	6
W. E. Davis - - - -	5	5	0
A. Wingate - - - -	2	10	0
Zeph. King - - - -	2	2	0
J. J. Cotten - - - -	1	1	0
R. Hosking - - - -	1	1	0
	£4,330	5	6

A New Chapel and Schools at Radstock has been erected for the Wesleyan Methodists at a cost of over £5,000. The building, which consists of a nave with aisles on each side, is 59ft. 9in. by 37ft. 3in. There is a choir at the back raised above the nave, and in front is a spacious rostrum. A gallery surrounds the buildings, supported by iron columns. The roof is in one span, rising to a height of 30ft. 6in. Seating accommodation is provided for 280 persons in the body of the chapel and 256 in the gallery.

An Act to Prevent the Defacement of Scenery was passed in the last session of the Prussian Landtag. It runs as follows: "With the object of preventing the disfigurement of places remarkable for their natural beauty, the police authorities are empowered to prohibit outside of towns such advertising boards or notices or pictorial devices as disfigure the landscape by means of police regulations issued in accordance with the law of July 30th, 1883. Such regulations may apply to particular areas or spots."

At Conway Workhouse a number of alterations and additions have been carried out at a cost of about £4,500. The architect was Mr. T. B. Farrington. A new dining-hall has been erected on the site of the old hall, and provides seating accommodation for 100 persons. A new board-room has been constructed over the new dining-hall. The ventilation has been carried out by Messrs. James Stott & Co., Oldham, and the furnishing by Messrs. Rhydwen Jones & Davies, Llandudno. A new laundry has also been constructed, and is divided into four departments, namely, receiving-room, washhouse, ironing-room and delivery-room. The contract has been satisfactorily carried out by Messrs. David Jones & Hughes, contractors, Conway and Llandudno, under the supervision of Mr. T. B. Farrington, A.M.I.C.E., Trinity Square, Llandudno.

A New Institute at Newborough, Anglesey, is being erected to fulfil the purpose of a library, village club and meeting place, and also should provide accommodation in which the aged people of the parish might spend their closing days. Mr. Rowland Lloyd Jones, of Carnarvon, is the architect. The site is on the road from Newborough to Gaerwen, and the institute will front the Menai Straits. Comprising some 26,000 sq. yds., the site will have three cottages or almshouses on each side. The quadrangle in front will be laid out as a garden. From the ground floor to the first floor the institute is to be of grey Anglesey granite, with dressings of Ruabon stone, and the upper part is treated in half timber, with two gables divided by a clock tower over the entrance-hall, which will be of granite to the domed roof, which, with the finial, will be of copper. On the ground floor, to the left of the vestibule, is the library, and on the right a smoking-room and a coffee-room. Over the libary is an assembly-hall of similar dimensions, and over the coffee-room a reading-room. All the necessary offices, such as kitchens, cloak-rooms, and committee-rooms, are provided.

Builders' Notes.

The late Mr. William Griffiths, of St. Martin's, Salop, retired timber merchant, left an estate valued at £22,000 odd.

Builders and the King.—At the half-yearly meeting of the Midland Centre of the National Federation of Building Trade Employers recently held in Birmingham, under the presidency of Mr. William Sapcote, a message of sympathy with his Majesty in his serious illness was sent. To this a reply has been received from Mr. Akers-Douglas stating that he laid the message before the King. His Majesty was pleased to receive the same very graciously.

R. Waygood & Co., Ltd., and the Otis Elevator Co., Ltd.—A consolidation of these two companies has been effected, and the joint business will in future be carried on under the title of Waygood & Otis, Ltd. The name of Waygood has been associated with the best quality of hydraulic lift and hoist work for the last half century; while to the Otis Company attaches the credit of having introduced and popularised the electric lift in Great Britain. The major portion of the lift business in this country has been carried out by these two firms, and the more responsible and exacting class of work, such as installations in the royal palaces, Government offices, public institutions and leading hotels, has been almost entirely entrusted to one or other of them. The consideration which appears to have determined the directors and shareholders of both companies in favour of fusion of the two businesses is that each party is able to supplement the other in important respects, the Waygood Company possessing excellent manufacturing facilities, while the Otis Company controls for the British Empire and Europe the patents, designs and wide experience of the Otis Elevator Co. of U.S.A. The British and American Otis companies are quite distinct organisations, possessing only the name in common; but the British company is not only the proprietor of the American company's patents in its territories, but has the immense resources of the latter at its back. Mr. H. C. Walker, chairman and managing director of R. Waygood & Co., will be chairman of the new company, and together with Mr. R. Percy Sellon, M.I.E.E., managing director of the Otis Elevator Co., Ltd., will act as joint managing director of Waygood & Otis, Ltd.

A Serious Accident occurred last week at Tunbridge Wells, resulting in the death of one man and injuries to four others. The men were plastering the roof of the New Opera House on Mount Pleasant, and they fell a distance of 40ft. to the floor owing to a plank giving way. A stonemason, named Murrell, was killed on the spot, and the four others were so badly injured as to necessitate their removal to the hospital, where two of them lie in a precarious condition.

New Building Regulations in Calcutta are now coming into force, but these will require for their proper working something more than a mere amateur knowledge of the subjects involved, as at present available among the responsible officers of the Corporation. The deputy chairman controls the building department at present, but his knowledge of the matter may be regarded as purely official and pertaining to his office. The practice of course grew up under the old system, when all kind of power was reserved for the officers who had been hoisted into office by their respective cliques. Under the new system there is at least recognition of such anomalies, and no one under the rank of chairman is allowed to be omniscient. By the new regulations, a building surveyor is to be appointed (at a salary of Rs. 700 to Rs. 1,000 per month), whose duty it will be to see to the proper carrying-out of the building regulations, combined with the position of city architect.

A Fire Test with Hollow Concrete Blocks made by Messrs J. Wright & Co. was recently undertaken at the company's premises at New Malden, Surrey. The blocks were 4¼in. thick, and were built in the form of a flue, 5ft. high at the back and about 3ft. high at the front and ends. This was filled with dried timber, and two quarts of paraffin were poured on the wood to add to its inflammability; while the continuous hollow spaces in the blocks were filled with water. The test lasted three-quarters of an hour, and resulted as follows:—The outside temperature of the walls was not perceptibly increased, although the water inside was boiling. No sign of calcination of the blocks either inside or out had taken place, nor had the cement joints which held the blocks together suffered. As a further test, whilst the inside of the well was a glowing mass of fire, a stream of cold water was played from a hose without any damage whatever resulting to the blocks. The blocks, although kept filled with water, only showed, on the outside, a moisture which did not extend beyond the walls, so that little or no damage would have been done to any stock which might have been lying against the other side of such a partition.

Maple Floors in Buildings: A Fire and its Results.—A large building of slow-burning construction was partly burned a short time ago in Pittsburgh. The floors, which were of heavy timbers, covered with 3in. pine planks, and this with 1in. maple flooring, resisted the flames very well, but the water thrown on the fire swelled the maple flooring so much as to push out the brick walls several inches. It seems that in some of the floors the maple flooring was simply lifted in ridges from the planking by the effect of the water; but, in certain storeys, where a heavy load of boxes of glass prevented the boards from buckling upwards, the whole movement was lateral. "Architects will reason from this occurrence," says the "American Architect," "that maple upper floors in warehouses, if of large extent, ought not to be too dry before laying. In most cases kiln-drying is avoided under such circumstances, but it is important to keep the floors tight, and these boards, if not kiln-dried, seem to have been laid with very close joints. It may be observed that many architects who use the slow-burning construction pitch their floors slightly, and provide outlets by which water thrown upon them to extinguish fire may escape without soaking the boards; and if, as is sometimes done, a little gutter is contrived in the flooring at the two sides of the building parallel with the floor-boards, the swelling of the latter will not affect the walls."

Accident caused by Cradle.—A serious accident happened at the German Embassy, No. 9, Carlton House Terrace, last week, in which a workman named Alfred Weaver was badly injured. The Embassy is undergoing redecoration, and Weaver, a painter, was working from a swinging platform when the rope gave way, and the man fell a distance of about 25ft. into the basement below. He was picked up and conveyed to the Charing Cross Hospital suffering from a broken arm and a number of cuts and bruises about his head, body and face.

International Fire Exhibition, 1903.—In order to assure the international character of the International Fire Exhibition at Earl's Court next year the British Fire Prevention Committee has arranged with its foreign corresponding members for the formation of local committees in the countries principally interested in the question of fire protection. Arrangements have been made that the acting secretary will be in attendance daily from 11 to 1 at the offices of the Committee, 1, Waterloo Place, to which all enquiries should be directed. Among the many foreign representatives who will co-operate in the exhibition are Professor Berger, city architect of Vienna; M. Louis Bonnier, architect to the city of Paris; Herr Hinckeldeyn, principal Director of Public Works in Germany; Von der Hude, president of the Society of Architects, Berlin; Count Paul de Suzor, city architect of St. Petersburg; and M. Kuttner, vice-president of the Russian Imperial Institute of Architects.

St. Owen's (Hereford) Improvement Scheme: A Lively Dispute.—The Corporation of Hereford has built a number of workmen's dwellings at St. Owen's, and in connection with these a lively dispute has been in progress between the Hereford Master-Builders' Association and the city surveyor (Mr. John Parker). Acting on instructions from the Association, Messrs. James Brooks, Son & Godsell, the well-known firm of architects, made a report on the cottages in which, among other things, they say that the drawings, specifications and quantities have not been adhered to, and that the work has been unsatisfactorily carried out. "It matters little what the actual cost of carrying out the work may be, because the amount that will ultimately be required to be expended on repairs will be wholly out of proportion to the income derived from the property, and in a few years the houses will be little better than the hovels that were pulled down to make place for the present buildings." They then go on to enumerate and deal with the matters in detail. In reply to these charges Mr. Parker states: "I presume the object of the report is to show that such deviations have been made from the original specification and quantities supplied to the builders as to account for the difference of some £1,000 between the lowest Hereford tender and the actual cost of the work. Even supposing such a view of the position possible, I fail to see that the Association or any firm of architects have any right to dictate to the Council how their business should be conducted; but, in compliance with the desire expressed, I am pleased to have this opportunity of refuting statements which might injuriously affect my official and professional position in the city." Mr. Parker then at considerable length goes into the details of the various charges, contradicting or explaining them, but we have not the space to give these details.

A FOUNDATION ON QUICKSAND.*

By C. A. LEARNED.

MERIDEN lies in a valley between high hills. In the valley, which is claimed by some to be the original bed of the Connecticut River, is a soil which consists of a sandy loam, a little gravel and plenty of quicksand. Most of the buildings in this valley rest on the skin which is found at various depths below the surface, and here the Meriden Gaslight Co. bought a 300ft. by 500ft. meadow-lot adjoining its works on which to erect a new holder. Careful borings were made over a section 120ft. wide by 250ft. long to determine the thickness of the gravel, if any, and its distance below the surface. About seventy-five tests were taken and the result laid out and plotted into curves, so that the most desirable place for the site might be determined. The top material was a sandy loam; the next, a good gravel, but very thin; below that, a quicksand of unknown depth. At a few points the gravel, was found as near as 2ft. to the surface and 2ft. thick, while at the others it was 8ft. 5in. deep and only 4in. thick, shading off to nothing. The average depth, however, taken from the boring-stations was 5ft. 5in. deep and 1ft. 2in. thick. A boring of 50ft. taken in the centre of the site showed 42ft. of quicksand and still more below.

On such materials it was decided to construct the foundation and erect a steel tank-holder, to be 115ft. in diameter and 103ft. high, holding 700,000ft. of gas in three lifts; the weight of the holder to be 475 tons, and the weight of the water to be 8,625 tons, or a total of 9,100 tons.

As the work of excavating progressed and the gravel was exposed, there was found a clearly-defined depression diagonally across the pit. Through this depression the gravel was very thin, and in three places the quicksand was entirely exposed—the first, a space 10ft. by 15ft.; the second, a space 4ft. by 12ft.; the third, a space 3ft. by 15ft.

Hardly had the whole of the loam been removed when rain came, overflowing the meadow and deluging the pit. This convinced the company more than ever that in erecting a holder it would be advisable to make the top of the foundation above high-water mark, which, in this case, would mean a fill in some spots of 12ft. with an average of 8ft., and the steel tank would be 2ft. 5in. above the level of the meadow.

At this point a difficult problem was confronted. Meriden topographically is on high hills and in a sandy valley; good gravel is a very scarce article. Four miles away, on the line of the railroad, is a large poor gravel bank, and two miles in another direction is a small good bank; but with all the teams that could be procured it was not possible to haul the material as fast as it was needed; and it was expensive—4s. 2d. per yd. delivered. It was evident that other and good material must be obtained in large quantities. On the line of the railroad three miles away is a large trap-rock quarry. Refuse in the shape of ironstone, soft-rock and some dirt is accumulated in large quantities. It was believed this stone would mix well with the material which was on hand, and could be purchased after it had been passed through the crusher to a 1½in. size at 2s. 6d. per yd. delivered, and in quantities up to 150yds per day. About 50yds. of gravel and 50yds. of clean sharp sand could also be procured each day, and as much ashes from the works as there were teams to put on it.

The question of piling was considered, and by some might seem the only wise plan under the circumstances, but after consulting the leading local builder, who had worked on this quicksand for thirty years and had erected some very heavy factory-buildings on it, it was thought best to put in a combination filling of the above-named materials.

The quicksand is found hard packed and not easily dug, unless water is allowed to mix freely with it. Although the excavation was in places much below the level of the adjoining brook, little water was encountered, and quite as much came from the land as from the brook side. By keeping the bare spots well drained the men could work on the quicksand with a degree of ease without sinking in very deep; the less it was disturbed, however, the better off they were. Over these bare spots it was decided to lay planks close together lengthways of the holes, and upon these 8in. by 10in. timbers, 8in. apart, crossways of the holes. The filling between the timbers was of pieces of bricks and old retorts broken up fine, that being the best material at hand just then. One of the bare spots being narrow and long, the surface was covered with large flat stones, the smaller spaces being filled in with firebricks and coarse ashes.

While working at this low level a pump was run night and day; also from these quicksand spots a 4in. tile drain was laid to a central point to facilitate drainage and keep the mass from becoming spongy while the tamping was going on and each course of filling was laid.

Until the whole surface approached a level no roller could be used, but everything put in was thoroughly rammed and sprinkled. The layers were about 3in. thick over the whole surface. When the valleys were evened up a two-horse 4,000lb. roller was put on, and as the thickness became greater this roller was increased in weight to 6,500lbs., requiring four horses. When the level of filling had been raised above the natural water-level the pumping was dispensed with over night, allowing the foundation to be saturated, but it was pumped out again in the morning.

Near the centre of the foundation a loose brick well was built up, into which the water ran as the foundation was successively wetted, and from which it was pumped to the brook. There were some high knolls of gravel not more than 3ft. below the surface. It was thought at first that the 5ft. concrete side-wall foundation might rest on these, but further consideration convinced the company that this was not advisable, as part of the foundation would rest on natural gravel, while most of it would be on filled ground, so the whole level was raised 1ft. to allow of the same kind of cushion underneath the whole structure before the 5ft. circle was started.

The layers spread each day over a diameter of 125ft. were about as follows:—125yds. of quarry refuse, 40yds. of good gravel, 50yds. of works' ashes. Towards the end of the work the ashes were exhausted. Near by was a bank of 500yds. of sand, and from this was taken what was needed to make the top-dressing under the concrete, spreading on the stone, washing it in and carefully rolling. Towards the end the roller worked night and day.

Near the edge where the wall of concrete was laid there was a space that could not be rolled, but had to be filled and tamped to a depth of 4ft. In order to make sure that this portion was as solid as the centre, a round tapering bar 5ft. long was driven into the main foundation several times. Seventy blows on the average were required to drive it 4ft. 5in., and the outside ring was tamped until it equalled the above test.

The amount of material removed approximated 2,900yds. The work of excavating and filling ready to begin concreting took twenty-two days, and six days more were required to fill-in around the great circle after the concrete wall was 4ft. high. This, however, did not delay the concreters in their work. The filling was in the following amounts:—Quarry stone or refuse, 1,780yds.; gravel, 680yds.; sand, 310yds.; ashes, 1,100yds.; total, 3,870yds.

On this foundation were laid 630yds. of Portland-cement concrete in the following proportions:—1 of cement, 2½ of sand and 5 of stone. The size of stone was 1¼in. and smaller. A great circle of concrete 4ft. wide and 1ft. thick was laid 5ft. below the finished top. On this circle was laid a ring 3ft. wide at the bottom, tapering to 2ft. 9in. wide at the top, and 3ft. high; resting on the ring was laid, over the whole diameter of 118ft., a layer 1ft. thick, trued to perfect level and plastered smooth. This work was accomplished in eighteen days, and in a most satisfactory manner, a local engineer taking the job at 20s. 6d. per cub. yd. laid. As soon as the foundation was ready the ironmen were on the ground, and the holder was erected complete in a week less than the specified time of four months.

In order to prevent the action of the brook eating away the bank near the holder, a stone wall 7ft. high was built to the level of the holder foundation and 400ft. long, protecting also a new purifier building near the brook. City water was used to fill the tank, as the brook water contained acids. It took three and a half days to fill the tank, which holds a little over 2,000,000 gallons. Before the water was put in careful levels were taken on eight points of the foundations. After filling levels were again taken, and there was not the slighest settlement.

*Extracts from a paper read before the New England Association of Gas Engineers.

TRADES TRAINING SCHOOLS.

WE have received a copy of the report of the judges on the work done at the trades' training schools of the Worshipful Companies of Carpenters, Joiners, Painter Stainers, Plaisterers, Tylers and Bricklayers, and Wheelwrights at 153, Great Titchfield Street, W. The director of the school, Mr. H. Phillips Fletcher, F.R.I.B.A., F.S.I., A.M.I.C.E., states that the classes in carpentry, masonwork and painting are in a flourishing condition, especially the first; while the classes in joinery and brickwork also show considerable improvement; the classes in plastering, plumbing, smithwork and woodcarving are, however, rather meagre and disappointing. With regard to the plastering class, it is hoped that the appointment of Mr. William Millar as instructor for the coming session will put it on a more successful basis. In concluding his report, Mr. Fletcher says:—

We have not quite so many students as last session, but, on the whole, the work executed is distinctly satisfactory. Fluctuation in numbers is always bound to take place. It is to be regretted that the companies cannot see their way to light their shops with electricity. We have no machinery or lathes in the school at all, with the exception of the smiths' motor. The committee will have to seriously consider these points in the future. A pattern-making shop and a shop for teaching students wiring for electric installations in houses might be added to the school, if the committee can see their way to do so.

Over 2,000 craftsmen have passed through the school since it was established, and one frequently meets old students on building operations as foremen, and in other advanced positions, which testifies to the good wrought by the companies in their work. The companies are much indebted to Prof. T. Roger Smith, who is chairman of the school. His advice and interest, so quietly given, are of the very greatest assistance. Architects' pupils are admitted to the various classes provided there is sufficient room.

Enquiries Answered.

The services of a large staff of experts are at the disposal of readers who require information on architectural, constructional or legal matters. Questions should in all cases be addressed to the Editor. The querist's name and address must always be given, not necessarily for publication.

Roof for Dye-House.

MACCLESFIELD.—A. C. writes: "In a cotton or calico dye-house is any advantage to be gained by having the roof boarded and felted over the spars? Should the timbers for a dye-house roof be painted? In a dye-house (calico) which I have just constructed the roof as far as the skylights and over the louvres is boarded and felted to prevent condensation and keep dirt from falling on the cloth. The whole of the woodwork has been painted to preserve the woodwork from the action of the steam. A calico printer and dyer said the painting, boarding and felting was all a farce."

When a roof is boarded and felted the interior of the building is less liable to changes of temperature from external fluctuations, so that in the winter there would be less condensation of steam upon the underside of a dye-house roof. When timber is well-seasoned painting preserves it from the effects of moisture, but if not previously well-seasoned painting will hasten the decay. If the roof is constructed exactly as shown in your sketch (not reproduced) it is rather a curiosity, being apparently a Queen-post truss without straining beam or struts, and the Queen posts carried up to form the side frame of a high louvre, while the truss finishes on one side 6ft. from the end of tie-beam, the remaining space being occupied by a glass slope. HENRY ADAMS.

Monier System of Building.

BIRMINGHAM.—F. H. T. writes: "What is the Monier system of building as used in the new Postal Savings Bank Buildings at Amsterdam?"

The Monier system consists of rolled joists, old rails or other ironwork embedded in concrete foundations for the purpose of spreading them over a sufficient area without requiring to go very deep to obtain the strength necessary to carry the load. For instance, a concrete raft for a warehouse may be 2ft. to 3ft. thick on the Monier system with a better result than 4ft. to 6ft. of plain concrete would give. The Hennebique system is the embedding of round iron rods or other sections in concrete walls, pillars and piles in order to increase the strength. Ferro-concrete and armoured concrete are other terms for similar construction. HENRY ADAMS.

Material for Column.

WHITBY.—COLUMN writes: "I require some columns, about 15ft. long, to carry about 10 tons. I propose to use steel as being more reliable than cast-iron. For appearance sake the diameter should be 9in. or 10in. I expect solid rolled steel would be high in cost. Would drawn steel be trustworthy, and (approximately) how would it compare for cost with cast-iron? Or would built steel be better, considering that in the latter cases they would have to be wire-lathed and formed into circular plaster columns?"

For a column 15ft. high to carry 10 tons cast-iron is quite trustworthy, and if made 9in. diameter should be, say, ½in. thick, when it would carry 15 tons safely. It would, however, not be desirable to make it less than ½in. thick, owing to contingencies in casting. Cast, rolled or drawn steel would be very much more expensive. A built-up steel column would cost about twice as much as a cast-iron one, excluding cost of pattern. HENRY ADAMS.

Syllabus of S.K. Building Construction Examination.

LEICESTER.—STUDENT writes: "Where can I get a syllabus of the Board of Education's Building Construction Examination?"

From Messrs. Eyre & Spottiswoode, East Harding Street, Fetter Lane, E.C., price 1½d. post free. G. A. T. M.

Forming Connection with Drain.

BOLTON.—S. T. writes: "My client desires to erect a house on some land—the road to it is not sewered—and to put in a temporary drain will be £46. A friend of my client's has built a house adjoining the land of my client and put in a 6in. temporary drain for his house. I have asked the local authorities to allow my client to connect up to this temporary drain, but they refuse. Can they prevent us making a connection?"

The local sanitary authority appear to have good and reasonable grounds for refusing permission to connect your drain with the temporary drain constructed by your neighbour. T. E. C.

On Becoming an Architect.

WEST HAMPSTEAD.—H. W. writes: "Kindly give me some advice as to getting a place in an architect's office. I have obtained two certificates in the building construction examinations (Board of Education), one first-class elementary and one second-class advanced stage. Would these fit me for a situation? What other subjects should I study? Is the payment of a premium necessary for obtaining a good start, and which is the best medium through which to obtain a berth?"

The certificates from South Kensington are of slight value in the obtaining of a situation in an architect's or builder's office. To obtain a thorough practical knowledge of architectural practice, it is necessary to become a premiated pupil in an architect's office, and go through a course of study such as that at the Architectural Association Day and Evening Schools. We advise you to obtain from the secretary of the Architectural Association, 56, Great Marlborough Street, W., the curriculum, which gives full particulars of the classes and the subjects necessary to study and text-books therefor.

Ownership of Plans: and Percentage for Work not carried out.

CHESTERFIELD.—F. E. T. writes: "An architect prepares plans, specifications and bills of quantities for a certain number of houses. His client, however, does not feel disposed to proceed with the work. The architect therefore sends in his bill, and the client is prepared to pay it on condition he has the plans, specifications and bills of quantities in his possession. What percentage can be charged on the bills of quantities on account of the building not being proceeded with?"

If no special agreement has been made to let the client have the plans, &c., the architect is entitled to retain them, for he ordinarily contracts only to carry out the building for the client, and the failure to complete the contract is the client's and not the architect's, and the former must therefore stand to the loss. A client only hires the services of a professional man, and does not purchase outright the private knowledge contained in his notes, *i.e.*, specifications, plans, &c. (his stock-in-trade), but merely the product of it; in the case of an architect, this is the completed building. To put it in another way, the architect's position is allied to the patentee who grants the use of his invention to someone to manufacture one of the articles. A clause should always be inserted in the agreement making it clear from the first that the drawings, &c., belong to the architect, and a note to that effect made on each drawing, &c. The full percentage on the estimated cost can be charged for the quantities.

Specification for Roadway.

OCKLEY writes: "Where could I get the usual heads of specification for laying out, making up and sewering a 50ft. and two 40ft. roadways, about 4,500ft. in all, in the metropolitan area?"

"Specification No. 5," price 5s. nett, contains all the information you require.

Builders' Bookkeeping: and Fixing Blocks.

WIMBLEDON PARK.—G. W. H. writes: (1) "Is there any book published that contains a satisfactory method of keeping builders' accounts, suitable for a small contractor's and jobbing business? (2) Do you know of any kind of composition fixing bricks that do not easily break, are fireproof, and will hold screws so as to dispense with the ordinary wood or breeze fixing brick?"

(1) We cannot recommend any of the books which have been published on the subject. (2) J. Wright & Company's fixing blocks; their address is South-Western Works, New Malden.

Acetylene for Country Houses.

LONDON, E.C.—X. Y. Z. writes: "What is the best form of acetylene plant for lighting a small country house requiring about sixty 15-c.p. lights?"

See the article on "Acetylene" p. 31 of our issue for August 15th, 1900, and the review on p. 57 of this issue.

Golf Club-Houses.

CHESTER.—W. P. W. writes: "Have you ever published designs or given any particulars of golf club-houses, with the exception of that illustrated in your issues for May 7th and 14th last? Should such a club provide accommodation for ladies?"

We published several designs for golf club houses in our issue for November 10th, 1897. Accommodation for ladies should certainly be provided, as the members may be expected to bring lady friends, and also in all probability matches will at times be played in which ladies will take part.

Curing a Smokey Chimney.

PETERBOROUGH.—H. M. S. writes: "The accompanying sketch (not reproduced) shows roof plan and section of a pair of villas. The chimney on the north side smokes very badly during a northerly or north-easterly wind. I have had a special chimney pot put on it, but this has not cured it. Can you suggest anything?"

You do not send interior section, showing the form of flue, but we presume there is a bend in the chimey laterally on the outside of the wall, and therefore not in the direction of a northerly wind, the consequence being that there is nothing to prevent such a wind blowing down. We think the smoking could be prevented by bending the chimney back above the eaves so as to go up by the ridge, or by putting a revolving cowl on the top.

The Caretaker's Cottage at Kensington Avenue Schools, East Ham, E., illustrated on the opposite page, is placed in the north-west corner of the playground and commands a view of the whole of the front of the school premises. The accommodation consists of parlour, kitchen, scullery, two bedrooms and the usual offices. The lower portion of exterior is faced with Leicestershire red bricks and the upper is finished in rough-cast coloured a pale buff. The woodwork is painted green, with the exception of the casements and sashes, which are finished white. The architect is Mr. S. Jackson, of 65, Fenchurch Street, E.C.

SANITARY INSTITUTE.

CONGRESS AT MANCHESTER.

A CONGRESS of the Sanitary Institute is being held this week at Manchester. It opened yesterday, when the Right Hon. Earl Egerton of Tatton delivered his inaugural address. In the course of this address he made the following remarks with reference to the Manchester sewage-disposal works:—

Manchester has constructed a network of sewers, the total length of which amounts to 1,700 miles. These sewers vary from 9in. in diameter to the main sewer of 14ft. 10½in. The total cost for this sewerage system serving all the population of over half a million has been upwards of £600,000. These sewers convey daily twenty-six million gallons down to the purification works at Davyhulme. This quantity is enormously increased at times by the storm waters. At present the purification of this sewage is partly but incompletely performed in settling tanks by the help of lime and copperas, the clear effluent being sent into the Ship Canal, and the sludge being sent away to the sea beyond the Mersey bar. To accomplish this result a capital expenditure of over £200,000 has been incurred. In addition a large scheme, founded on the investigations and recommendations of the best chemists and engineers, provides for a series of detritus tanks and septic tanks, in which the insoluble mineral matter in the sewage will be arrested, and as much as possible of the organic sludge digested by anærobic organisms. In this way the present large expenditure in chemicals will be unnecessary, and the cost of sludge removal greatly reduced. The effluent from the tanks will then pass on to 46 acres of primary ærobic bacteria beds. From those it will be further purified by passing on to 46 acres of secondary beds at Flixton, and finally, if necessary, 100 acres of land are provided to complete the purification. In addition to the 46 acres of bacteria beds at Davyhulme there are also 26 acres of storm filters to be laid down there, which are intended to purify the occasional excessive flow in time of storm, and to serve also as a stand by for the main bacteria beds. Thus the total capacity of the new works will be to deal with 126,000,000 gals. per twenty-four hours.

The scheme of these beds has been laid out as far as possible on broad and simple lines, so as to promote ease and facility of working.

The beds are, with few exceptions, of uniform shape and dimensions and the point of admission of sewage to each bed is in the centre of the longer side adjoining the supply channel, which serves as a rule an equal range of beds on either side, so that in general the distributing centres fall in pairs opposite each other.

Supply channels are of adequate width and gradient to permit of delivering the volume of sewage necessary for filling two beds at once on the same channel in the minimum required time by gravitation to each distributing centre in the scheme.

The sewage is admitted from the supply channel to a distributing reservoir, from which it flows over a sill or weir of circular form, and thence along channels cut in radiating form over the surface of the bacteria bed. These channels are lined with fine-grade material, which tends to arrest suspended matters on its surface, and retain them from entering into the body of the bed.

The under-drainage of each bed is also laid out in radial form, the drainage lines converging into a main collecting drain, which is concentric with the distributing weir, and which communicates at each end with manholes, or at the centre with an outlet well, from which the discharges enter the draw-off channel.

The under drains are channels formed in the concrete bottom of the bed, covered with stoneware perforated slabs, set in rebates, so as to be flush with the surface of the bottom.

The average depth of the clinkers forming the body of the bacteria beds is 3ft. 4in., each bed having a cross fall of 2½in., and the space between the radial drainage lines being formed with a ridge in the centre to facilitate the discharge of the final drainage at the bottom.

The body of the bacteria beds is composed of furnace clinkers from which the fine material has been removed by screening, and the coarsest material is used for covering more particularly the radial drainage lines, and also the concrete bottom as far as practicable.

About twelve acres of beds are now in operation, and the following method of procedure is recommended for the successful working of contact beds:—

(1) The bed should be worked very slowly at first, in order to allow it to settle down and the bacterial growths to form. In this way there will be less danger of suspended matter finding its way into the body of the bed while the material is still loose and open.

(2) The burden should not be increased till analysis reveals the presence of surplus oxygen, either dissolved or in the form of nitrates in the effluent.

(3) Analyses of the air in the bed may usefully be made from time to time during resting periods.

(4) The variations in capacity should be carefully recorded. If the capacity is found to be rapidly decreasing a period of rest should be allowed.

(5) Long periods of rest should be avoided during winter, as when deprived of the heat of the sewage the activity of the organisms decreases. If necessary the burden on the bed should then be decreased by reducing the number of fillings per day rather than by giving a long rest at one time.

(6) The insoluble suspended matter should be retained on the surface by covering, at any rate, a portion of the latter with a layer of finer material not more than 3in. in depth. The suspended matter thus arrested should not be raked into the bed, but when its amount becomes excessive it should be scraped off. This should be done if possible, in dry, warm weather, after the bed has rested some days. By placing the inlet and outlet penstocks (or sluices) as close together as possible the suspended matter will tend to concentrate in their vicinity, and its removal will be facilitated.

The total capital expenditure on sewers and purifying works in Manchester and neighbourhood will amount to £1,300,000, or rather less than £2 10s. per head of the population served.

With regard to the other local authorities in the Mersey and Irwell watershed, aluminoferric is used by nearly half the boroughs and district councils as a precipitant; nearly one-third use no precipitant at all. The sludge is mostly disposed of on the land, being either given or occasionally sold to the farmers as manure. Rochdale, Bury and Withington are also constructing new works on bacteria beds.

I desire to call special attention to the successful working of the joint committee in Lancashire and Cheshire, and to press upon the Government that similar legislation to that which is now confined to those counties and Yorkshire should be extended to the whole country and made compulsory. The manufacturers in these counties feel that all similar traders in the kingdom should be compelled to treat their trade waste in the same way, as the cost of treatment is a definite charge on the cost of production and should therefore be general.

The outlay by the manufacturers has been considerable, probably not less than £300,000, but the improvement of the river water is itself an important benefit to them when river water is used for manufacturing purposes.

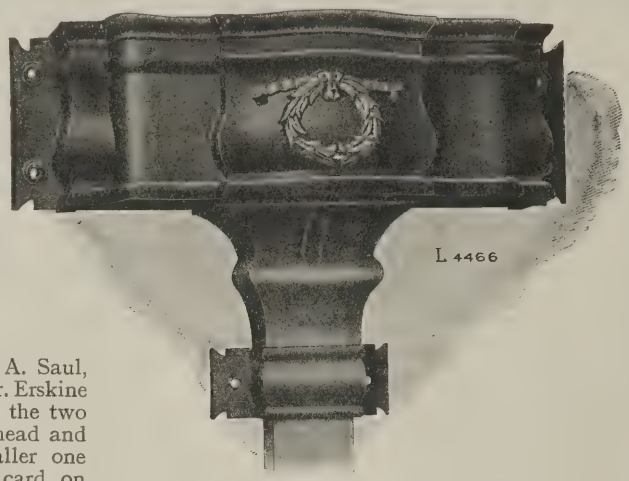


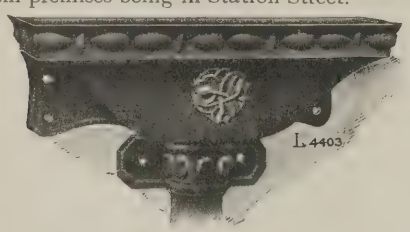
KENSINGTON AVENUE BOARD SCHOOL, E.: CARETAKER'S COTTAGE. S. JACKSON, ARCHITECT.

Trade and Craft.

Some New Pipe Heads.

The accompanying illustrations show two of the several new designs for rainwater-pipe heads which Messrs. Lockerbie & Wilkinson, Ltd., are now introducing. It is a regrettable fact that so much of the work produced by commercial firms is of such wretched design, being in many cases the mere duplication of patterns which were never good and which have since become out of date. So that it is at least refreshing to see a firm like Messrs. Lockerbie & Wilkinson sufficiently enterprising to have new designs prepared for them by architects of ability. Of the two pipe heads here illustrated that numbered L 4466 was designed by Mr. J. J. Joass, and the other is the work of Mr. C. A. Nicholson, both well-known men; while other designs have been prepared by Mr. A. R. Myers, Mr. D. W. Kennedy, Mr. H. A. Saul, Mr. A. Wickham Jarvis and Mr. Erskine S. Cummings. The larger of the two designs now shown costs £3 (head and socket ears), whilst the smaller one costs 15s. 9d.—in iron. A card on which the entire set of new designs is illustrated will be sent on application to Messrs. Lockerbie & Wilkinson, whose London office is at 109, Victoria Street, their Birmingham premises being in Station Street.





A Diagram Map of Ventilation.

In commemoration of the Coronation and also of the jubilee of the scientific application of natural ventilation as a complete system (developed fifty years ago by the late Mr. Robert Boyle, senior, in conjunction with Prof. Michael Faraday) Messrs. Robert Boyle & Son, Ltd., the well-known firm of London and Glasgow, are presenting to the schools in this country and the Colonies a large educational diagram illustrating "natural" ventilation as applied to buildings. About 50,000 of these diagrams will be sent out, and as the ordinary sale price of each is two guineas the very great expense to which the firm has thus gone will be readily appreciated, more especially when it is stated that the gift is not prompted solely for business considerations, but for the promotion of a better knowledge of the subject of ventilation in schools. A record of the progress made in regard to this branch of science may be found in the biography of the late Mr. Boyle, senior, wherein is also described the earlier work of the present Mr. Robert Boyle, who has devoted his whole life and a considerable portion of his private fortune to the subject.

Whilst referring to this matter it is interesting to note that "Meteor III.," the new racing yacht built in America for the German Emperor, is ventilated on the "Boyle" system with "air-pump" ventilator (upcast) and patent downcast ventilator, which effect a continuous change of air between decks in all weathers. The "Boyle" system was awarded the £50 prize, with grand diploma (the only prize offered), at the International Ventilation Competition, London, presided over by Lord John Manners, and the highest award for ventilation at the last Paris Exhibition—two gold medals and one silver medal—when the best known systems in Europe and the United States competed. It is employed in the British and foreign navies, and by the principal steamship companies in this and other countries, from whom Messrs. Boyle have received many valuable reports, one being from a First Naval Lord of the Admiralty and another from Lord Kelvin in connection with the application of the "air-pump" ventilator to his yacht "Lalla Rookh." The Russian Government are extensively employing the "Boyle" system, sixteen battleships having up to the present been ventilated throughout on this system, whilst others are in progress. The Indian troopship "Hardinge"—the largest troopship, we believe, in existence, designed by Sir Edward Reed for the British Government, and recently built by the Fairfield Shipbuilding Co., of Glasgow—is fitted throughout with the system, selected by the Admiralty as being the most suitable for the very trying conditions existing in such a vessel.

Law Cases.

Forming Streets too Narrow. — At the North Shields Police Court on Wednesday last John Thomas Alexander was summoned for a breach of the Tynemouth Corporation by-laws by forming a new street—King Edward Road—of a less width than 40ft. Mr. H. A. Adamson (town clerk), who appeared for the Corporation, said that in November, 1896, the Duke of Northumberland, through his agent, submitted an estate plan showing building sites adjacent to Tynemouth Railway Station. The plan showed 40ft. streets, and was approved. In June last Mr. Alexander deposited plans for the purpose of building villas opposite to Holy Saviour's Church in King Edward Road. This plan, too, showed a 40ft. street, and it was passed by the Buildings Committee, their action being confirmed by the Council. In building the boundary wall, however, the defendant narrowed the street to 37ft., and therefore contravened the by-law. Mr. G. R. Duncan, addressing the Bench for the defence, contended that there was nothing on the estate plan or on Mr. Alexander's plan showing that any portion of the ground purchased by his client would be required to make the road 40ft. wide. There were no buildings on the opposite side of the road to Mr. Alexander's, and until there were erections there, or a continuous line of buildings on his client's side, no street could be said to be formed. Mr. Alexander gave evidence to the effect that he had not in any way encroached upon the roadway or the footpath. He had rebuilt a wall upon the same site as the old wall. The Bench considered there had been an infringement of the by-law, and imposed a fine of 20s. and costs.

Engineering Notes.

The Designs for the New Sonning Bridges show lattice girders of light construction.

Synod Hall, Londonderry, is being warmed and ventilated by Messrs. John King, Ltd., engineers, of Liverpool.

Conway Suspension Bridge.—Mr. John J. Webster, C.E., has been instructed to prepare the necessary plans and specifications for the repair of this bridge at a cost of £6,500. Details of the work were given on p. 22 of our issue for August 27th.

The New Lock at Teddington is now in course of construction, work having been in progress for the past sixteen months. The lock, which is being built in accordance with the plans of Mr. Charles J. More, the engineer to the Thames Conservancy, will, when completed, be the largest on the Thames, and will possess accommodation for a tug and six barges at a time, as against a tug and a barge, which is the holding capacity of the present lock. It is to be 650ft. long and 25ft. wide, the length of the old lock being 177ft. To allow of its construction the Conservators have acquired three acres of Ham Fields from the trustees of Lord Dysart, and the existing lock-keeper's house will have to come down and be rebuilt elsewhere. The present lock, with the rollers at the side, will be retained to supplement the new one, which runs nearly parallel with it, and the heads will be level with each other up stream. The lock cut, however, is to be greatly widened, nearly as far as the iron footbridge, which connects the Surrey shore with the lock island and Teddington. The first section, upon which nearly 100 men are at present engaged, is nearly completed. The lock is being built of concrete, with granite copings, facings and sills, and will be provided with three pairs of large and powerful sluice gates to divide the lock into two enclosures. The present weir and channels will in no way be affected by the big work now in hand, which it is expected will be completed within the next nine months.

Tenders.

Information from accredited sources should be sent to "The Editor" at latest by noon on Monday if intended for publication in the following Wednesday's issue. Results of Tenders cannot be accepted unless they contain the name of the Architect or Surveyor for the work.

Addressed postcards on which lists of tenders may be stated will be sent post free on application to the Manager, BUILDERS' JOURNAL, *Effingham House, Arundel Street, Strand, W.C.*

Bristol.—For builders' and plumbers' work connected with the erection of school premises at Mina Road, Bristol, for the Bristol School Board. Mr. H. Dare Bryan, architect, 38 College Green, Bristol:—

Builders' work.

E. Love	£5,860 0 0
W. Church	5,789 0 0
G. Downs & Son	5,450 0 0
E. Clarke	5,447 5 0
Eastabrook & Sons	5,320 0 0
E. Walters	5,290 0 0
Stephens, Bastow & Co., Ltd.	5,199 0 0
R. Wilkins & Sons	5,098 0 0
S. Williams	4,920 0 0
G. Humphreys,* Stapleton Road	4,900 0 0

Plumbers' work.

A. E. W. Blissett	581 10 0
J. E. B. James	555 0 0
A. J. Vaughan	553 2 2
A. E. Wilkins	529 0 0
J. Wilkins	523 0 0
A. S. Scull	522 0 0
S. H. Povey	521 0 0
G. F. Tuckey,* Gloucester Street, St. Paul's	518 0 0

* Accepted. [All of Bristol.]

Carmarthen.—For additions to Alltyferin, Carmarthenshire. Mr. Glendinning Moxham, architect, Swansea:—

Bennett Brothers	£1,020
Henry Billings	995
Walters & Johns*	950

* Accepted. [All of Swansea.]

Chertsey.—For sewerage works, &c., for the Chertsey Urban District Council. Mr. W. H. Radford, C.E., engineer, Albion Chambers, King Street, Nottingham:—

Contract No. 1.—No. 1 Ward, 1,395yds. run 12in. stoneware pipe sewers, 12,500yds. 9in., 500yds. 8in. cast-iron rising main, 310yds. run 6in. cast-iron rising main, &c.:—

F. Farney, Fulham	£42,930 0 0
J. & F. Binns, Croydon	39,000 0 0
W. Jones & Son, Neath	34,475 0 0
Cooke & Co.	31,767 0 0
J. Jackson, Plaistow	30,874 17 7
W. Brigg, Eccleshill	30,300 0 0
G. Bell & Co., Tottenham	29,900 0 0
F. W. Trimm	29,100 0 0
F. Osenton, Westerham	27,290 0 0

Contract No. 2.—3,550yds run 12in. cast-iron rising main, &c.

F. W. Trimm	£4,487 0 0
J. & T. Binns	3,909 0 0
Hughes & Lancaster	3,871 6 9
F. Osenton, Plaistow	3,796 0 0
G. Bell & Co.	3,738 0 0
J. Jackson	3,664 16 8
J. Farney, Fulham	3,660 0 0
W. Brigg	3,650 0 0
Jones & Son	3,643 17 0
C. Ford, Harlesden	3,493 0 0
A. E. Nunn, Tenterden	3,450 0 0
B. Cooke & Co.	3,304 0 0
Gill & West, Southend	2,758 19 6

Contract No. 3.—Addlestone sewerage—7⅛ miles of 7in. to 10in. stoneware pipe sewers, and the laying of about four miles of iron pipe sewers, with manholes, lamp-shafts and other appurtenances, and the laying of 2½ miles of 10in. pumping main and three miles of small-sized flush-water mains, together with the erection of pumping station, with concrete storage tank under same :—

Osenton	£31,427 0 0
Cooke & Co.	30,861 0 0
Jones & Son	29,427 0 0
J. & T. Binns	28,078 0 0
Braithwaite & Co., Leeds	27,900 0 0
J. Jackson & Son	27,452 19 4
Trimm, Eastleigh	24,640 0 0

Contract No. 4.—Joint sewage-disposal works—the construction of four covered concrete septic tanks, and twenty-four concrete bacterial filter-beds and appurtenances ; also preparing and laying out 16 acres of land for filtration purposes :—

Osenton	£11,861 0 0
J. Jackson	11,479 19 4
Jones & Son	10,945 10 0
Trimm	10,701 0 0
Braithwaite & Co.	10,640 7 2
C. Ford	10,593 0 0
W. Cunliffe, Kingston	10,555 0 0
B. Cooke & Co.	10,251 0 0
Binns	10,180 0 0

Contract No. 5.—Combined contracts.

Binns, 1, 2, 3 and 4	£81,158 0 0
Jones & Son, 1, 2, 3 and 4	76,000 0 0
Cooke & Co., 1, 2, 3 and 4	75,000 0 0
Osenton, 1, 2, 3 and 4	74,000 0 0
Jackson, 1, 2, 3 and 4	72,972 12 11
Binns, 1, 2 and 3	70,978 0 0
Trimm, 1, 2, 3 and 4	68,928 0 0
Jones & Son, 1, 2 and 3	65,000 0 0
Osenton, 1, 2 and 3	62,500 0 0
Jackson, 1, 2 and 3	61,492 13 7
Trimm, 1, 2 and 3	58,227 0 0

Contract No. 6.—Pipes, &c.

Sheepbridge Iron Co.	£11,554 1 2
Staveley Iron Co.	11,366 18 2
Stephenson & Co., Glasgow	11,290 6 6
Cochrane & Co., Dudley	11,053 13 0
Stanton Ironworks	10,767 5 0
Clay Cross Co.	10,511 11 0

Felixstowe.—For the construction of the sea-walls, groynes, promenade and other works, for the Urban District Council :—

T. W. Pedrette, Stamford Hill	£19,762 0 6
Easton, Gibb & Son, London	18,983 5 6
G. Double, Ipswich	16,948 13 8
W. Grabwell & Co., Barrow-in-Furness	16,422 12 9
Case Sea-Defence Syndicate, Ltd., London	16,329 3 8
Bradshaw & Co., London	15,439 18 0
P. W. Symmons, London	15,326 8 0
H. J. Linzell, Felixstowe	15,219 0 0
A. Fasey & Son, Leytonstone	14,368 9 8
G. Hayward & Co., London	14,250 0 0
J. Moffat, Manchester	14,244 15 0
J. C. Truman, Swanley	13,990 0 0
C. Durrant, Walton	13,900 19 6
J. Moran & Son, Harwich	13,276 5 2
B. Cooke & Co.,* Westminster	12,506 3 2

* Accepted.

Finedon (Northants).—For Finedon water-supply works, for the Urban District Council. Messrs. Mosley & Scrivener, engineers, Fish Street Chambers, Northampton :—

Contract No. 1.—Water-tower.

R. Cosford, Northampton	2,269 0
J. T. Wingrove, Northampton	2,184 0
W. T. Willmott, Rushden	1,925 0
W. Higgins, Northampton	1,909 0
H. Shardlow, Nottingham	1,895 0
A. J. Chown, Northampton	1,850 0
Goodman & Murkett, Wellingborough	1,867 0
C. R. Pettitt, Thrapston	1,844 10
Berrill & Green, Wellingborough	1,822 10
Hacksley Brothers, Wellingborough	1,781 0
J. Titmus, Finedon	1,760 0
R. Marriott, Rushden	1,730 0
F. Henson, Finedon	1,695 0
T. Swindall, Rushden	1,657 0
G. Henson, Wellingborough	1,650 0
O. P. Drever,* Kettering	1,439 0

Contract No. 2.—Steel tank and girders.

Manlove, Alliott & Co., Nottingham	£1,400 0
A. Dodman, King's Lynn	1,121 0
Westwood & Wright	1,116 0
D. Rowell	998 0
Johnson & Wright, Northampton	980 17
J. Firth Blakeley, Dewsbury	972 0
H. Shardlow	900 0
Dixon & Fish, Kettering	860 0
W. R. Renshaw & Co., Stoke-on-Trent	780 0
Gilbert Thompson, Birmingham	759 0
John Thompson,* Dudley	740 0

Contract No. 5.—Engine-house and cottage.

H. Shardlow	£734 0
R. Cosford	684 0
J. T. Wingrove	654 0
W. G. Wilmott	623 0
R. Marriott, jun.	620 0
A. J. Chown	600 0
Goodman & Murkett	598 0
G. Henson	597 0
Hacksley Brothers	587 0
W. Higgins	586 0
F. Henson	580 0
Berrill & Green	565 0
J. Titmus	525 0
O. P. Drever*	503 0

Contract No. 7.—Reservoir.

R. W. Barker, Harrogate	£2,484 9 8
C. R. Pettitt	2,367 0 0
R. Cosford	2,100 0 0
W. W. Bolton, Thrapston	2,098 0 0
J. T. Wingrove	2,025 0 0
A. J. Chown	1,995 0 0
R. Marriott, jun.	1,940 0 0
Hacksley Brothers	1,889 0 0
F. Henson	1,888 0 0
Willmott	1,869 0 0
H. Shardlow	1,862 0 0
Goodman & Murkett	1,847 0 0
G. Henson	1,795 0 0
T. Swindall	1,655 0 0
W. Higgins	1,552 0 0
Berrill & Green	1,536 0 0
J. Titmus	1,355 0 0
O. P. Drever*	1,259 11 0

Contract No. 8.—Iron pipes.

W. W. Bolton	£2,116 0
Watson, Gow & Co., Glasgow	2,062 0
R. W. Barker	1,952 0
Stanton Ironworks, near Nottingham	1,946 0
H. Shardlow	1,913 0
Dixon & Fish	1,913 0
Sheepbridge Coal & Iron Co.,* Chesterfield	1,773 0

Contract No. 9.—Laying pipes, &c.
Original tenders.

W. Higgins	£2,372 0
R. W. Barker	1,958 0
T. Swindall	1,875 0
W. G. Willmott	1,861 0
R. Marriott, jun.	1,825 0
G. Henson	1,800 0
F. Henson	1,760 0
W. W. Bolton	1,610 0
Lea & Warren, Kettering	1,607 0
O. P. Drever	1,311 0
Dixon & Fish	1,304 12
R. Cosford	1,228 0
H. Shardlow	1,203 0
J. T. Wingrove	1,188 0

Revised tenders.

R. Cosford	£1,463 0
J. T. Wingrove	1,414 10
H. Shardlow	1,346 14
Dixon & Fish	1,322 2

NOTE.—Dixon & Fish are the accepted tenderers for Contract No. 9, but which amounts has not been indicated. * Accepted.

Grimsby.—For the piling, timbering and concreting at the Alderman Dobson School, for the Grimsby School Board. Mr. H. C. Scaping, architect, Court Chambers, Grimsby :—

Pedrette & Co., London	£5,087 2 6
Gradwell & Co., Barrow-in-Furness	3,459 2 2
H. B. James, London	3,350 0 0
Hewins & Goodhand, Grimsby	3,329 11 0
J. M. Thomson & Sons, Grimsby	3,239 0 0
J. Waterman, Grimsby	2,887 0 0
Harman & Langton,* Hull	2,788 0 0

* Accepted.

Harrow.—For the making-up of the following private streets : Vaughan Road (Part 1), Butler Road (Part 1), Cross Road, Whitehall Road and Lansdown Road, for the Harrow-on-the-Hill Urban District Council. Mr. J. Percy Bennetts, engineer and surveyor :—

C. Ford, Harlesden	£4,783 0 0
F. Dupont & Co., Watford	4,314 5 2
Meston & Hale, North Kensington	4,276 0 7
G. Wimpey & Co., Hammersmith	4,153 0 0
Bracey & Clark, Watford	4,080 0 0
E. W. Hollingsworth, Wealdstone	4,058 8 2
T. Free & Son, Maidenhead	3,785 0 9
T. Adams,* Wood Green	3,643 19 10
Felkin & Watson, Southall†	3,361 0 0

* Accepted. † Withdrawn.

Llandrindod.—Accepted for drainage work at Disserth Rectory, Llandrindod. Mr. Glendinning Moxam, architect, Swansea :—

Price & Williams, Builth	£192 10

Llantarnam (Wales).—For construction of Coronation Road, for the Urban District Council :—

Meredith	£4,820 17 4
Lucas	2,908 17 6
Leadbeter	2,847 0 0
H. Linton	2,798 0 0
Geen & Linton	2,786 8 11
Dyson Parfitt	2,537 0 0
H. C. Parfitt	2,382 0 0
C. H. Reed*	2,302 0 0
H. Davies†	2,150 0 0

* Recommended for acceptance for road and bridge work, the question of fencing deferred. † Informal.

London, S.W.—For proposed works at 64 Eaton Square, S.W. Messrs. Walton & Lee, surveyors, 10 Mount Street, W

Structural works.		Decorations.	
Druce & Co.	£1,137	Druce & Co.	£323
Thompson & Beveridge	1,125	Thompson & Beveridge	308
Simpson & Son	1,100	Simpson & Son	300
Buckeridge	1,082	Buckeridge	290
Stimpson & Co	1,060	Stimpson & Co.	320
Mitchell & Son	980	Mitchell & Son	249

Southsea.—For the erection of business premises, Elm Grove, &c., for Mr. R. Payne. Mr. G. E. Smith, architect, 145 Victoria Road North, Southsea. Quantities by architect :—

J. Durrant	£6,700 10
W. Learmouth	6,427 0
Corke	6,420 0
Sprigings & Co.	6,400 0
Dowdell	6,351 0
Harding	6,251 0
Davis	6,245 0
Clark & Son	6,189 0
Crockerell	6,109 0
Coltherup	5,995 0
Salter, King's Road*	5,994 0

NOTE.—Steel construction by Pierson & Co., London.
* Accepted.

Swansea.—For the erection of a house at the Olchfa, Sketty, Swansea. Mr. Glendinning Moxham, architect, 39 Castle Street, Swansea :—

Lloyd Brothers	£2,770	Walters & John	£2,600
J. & F. Weaver	2,650	John Davies	2,576
David Jenkins	2,645	Bennett Brothers*	2,547
Henry Billings	2,630		

* Accepted. [All of Swansea.]

Swansea.—For the erection of new chancel, St. Barnabas, Waunarlwyd, Swansea. Mr. Glendinning Moxham, architect, Swansea :—

John Davies	£532 10
Thomas Richards	532 1
Henry Billings	517 0
Walters & Johns	460 0
Bennett Brothers*	459 0

* Accepted. [All of Swansea.]

Swansea.—Accepted for rebuilding shop, 19 High Street, Swansea. Mr. Glendinning Moxham, architect, Swansea :—

Henry Billings, Swansea	£880

Swansea.—Accepted for additions to Brynbriallu Swansea. Mr. Glendinning Moxham, architect, Swansea :—

Henry Billings, Swansea	£250

Swansea.—For the erection of a pair of cottages Murton, Swansea. Mr. Glendinning Moxham, architect Swansea :—

Henry Billings	£596
Thomas Davies*	520

* Accepted. [Both of Swansea.]

Swindon.—For the erection of the higher elementary school, Euclid Street, Swindon, for the Swindon School Board. Messrs. Bishop & Pritchett, architects, Swindon :—

Downing & Rudman, New Street, Chippenham	£10,700 0 0
McC. E. Fitt, 118 Oxford Street, Reading	9,246 0 0
H. & C. Spackman	8,629 0 0
J. Williams, Bath Road	8,428 9 0
A. J. Colborne, Newport Street	8,409 0 0
C. Williams,* Princes Street	8,356 17 10

* Accepted. [Rest of Swindon.]

Thornaby-on-Tees.—For street works, for the Corporation. Mr. C. T. Johnson, borough engineer :—

W. O'Doherty, Stockton	£2,441
W. Robinson,* 15 Bright Street, Stockton-on-Tees	2,080

* Accepted.

Woodford.—For kerbing, channelling and making-up Sunset Avenue, Woodford Green, for the Woodford Urban District Council. Mr. William Farrington, surveyor :—

Parsons & Parsons, Ilford Wharf, Ilford	£1,097 17 9
Griffiths & Co., Hamilton House, Bishopsgate Street Without	1,090 4 11
J. Meston, 60 St. Mark's Road, North Kensington, W.	1,044 1 11
French Brothers,* Buckhurst Hill	1,038 6 6

[Surveyor's estimate, £1,065.] * Accepted.

Woking.—For the erection of a house, Januay Hill, Woking, for Mr. F. H. Wenham, Messrs. William G. Jones & Clinton, architects, Woking and Farnborough :—

J. Whitburn	£3,737 10
J. Harris & Son*	3,619 0

* Accepted.

Yarmouth (Great).—For the erection of nurses' home, for Great Yarmouth Board of Guardians. Mr. A. S. Hewitt, A.R.I.B.A., architect, Regent Street, Great Yarmouth :—

Bray	£2,468 0 0
Everitt	2,450 0 0
Beech	2,388 10 6
Read	2,364 15 0
Jary	2,323 0 0
Rand	2,299 14 0
Williment	2,285 0 0
S. & F. Smith	2,270 0 0
Eastoe	2,267 0 0
Pestell	2,237 10 0
Carter & Wright	2,229 0 0
Harman	2,138 15 0
Dawson*	2,061 0 0

* Accepted.

Ystalyfera.—For the erection of a shop at Ystalyfera for Mr. Luther Lloyd. Mr. Glendinning Moxham, architect, Swansea :—

Marles Brothers	£710 0
Benjamin Lewis	610 0
D. Rees,* Ystalyfera	512 10

* Accepted. [Rest of Swansea.]

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDERS MAY BE OBTAINED.
	BUILDING:		
Sept. 11	Hackney—Coal Stores	Borough Council	R. Hammond, 61 Victoria Street, Westminster, S.W.
„ 11	Walthamstow—Sorting Office	Commnrs. of H.M. Works, &c.	J. Wager, H.M. Office of Works, &c., Storey's Gate, Westminster.
„ 11	Ebbw Vale, Mon—Works, Offices, &c.	Urban District Council	T. J. Thomas, Engineer, Council Offices, Ebbw Vale.
„ 11	Whiston—Bathrooms, &c., at Sanatorium	Rural District Council	J. Gandy, Architect, Hall Street, St. Helens.
„ 12	Hereford—Isolation Hospital	Rural District Council	T. Llanwarne, 8 St. John Street, Hereford.
„ 12	Manchester—Lavatory	Sanitary Committee	City Architect, Town Hall, Manchester.
„ 12	Rhos, Wales—Alterations at Public Hall	———	No. 51 Mountain Street, Rhos.
„ 12	Sheffield—Bridge over Canal	Improvement Committee	C. F. Wike, City Surveyor, Town Hall, Sheffield.
„ 12	Hull—Synagogue and Schoolrooms	Old Hebrew Congregation	Ansdell & Cox, 50 Savile Street, Hull.
„ 12	Blackley—Lavatory	Manchester Corporation	City Architect, Town Hall, Manchester.
„ 12	Auchterderran, Scotland—School	School Board	W. Williamson, 220 High Street, Kirkcaldy.
„ 13	Dowlais—Showroom, House, &c.	Picton & Morris	T. Roderick, Architect, Glebeland, Merthyr.
„ 13	Linlithgow—Police Station, &c.	Standing Joint Committee	E. C. H. Maidman, 13 South Charlotte Street, Edinburgh.
„ 13	Sabden, Lancs—Boundary Walls	———	Mr. Gregson, Surveyor, Padiham.
„ 14	Troedyrhiw, Wales—Altering, &c., School	———	Price Brothers, Grocers, Troedyrhiw.
„ 15	London, N.W.—Pair of Cottages, Fire Escape Shed, &c.	Hendon Urban District Council	S. S. Grimley, Engineer, Council Offices, The Burroughs, Hendon.
„ 15	Llwyncelyn, Porth, Wales—School	———	J. Rees, Hillside Cottage, Pentre.
„ 15	London, W.—Convenience	Kensington Royal Borough Council.	Borough Engineer, Town Hall, Kensington.
„ 16	Cowfold, Sussex—Alterations, &c.	———	W. Buck, Architect, Horsham.
„ 16	Ilkeston—Laundry, &c., at Hospital	Committee	C. W. Hunt, 132 Station Road, Ilkeston.
„ 16	Norwich—Classrooms, &c.	School Board	C. J. Brown, Architect, Cathedral Offices, Norwich.
„ 16	Leyland, Lancs—Business Premises	Industrial Co-op. Soc., Ltd.	H. Howarth, Architect, Morecambe.
„ 17	London, S.E.—Bathrooms and Stores	Lambeth Workhouse Guardians	S. R. J. Smith, 15 York Buildings, Adelphi, W.C.
„ 18	Woolwich—Municipal Buildings	Borough Council	A. B. Bryceson, Town Clerk, Town Hall, Woolwich.
„ 18	London, S.E.—Operating Room at Infirmary	Southwark Union Guardians	G. D. Stevenson, 13 & 14 King Street, Cheapside, E.C.
„ 18	Devonport—Buildings at Gasworks	Corporation	J. F. Burns, 29 Ker Street, Devonport.
„ 18	London, S.E.—Converting Railway Arch into Stables, &c.	Southwark Union Guardians	G. D. Stevenson, 13 & 14 King Street, E.C.
„ 18	Woolwich—Greenhouse	Borough Council	F. Sumner, Borough Engineer, Maxey Road, Plumstead.
„ 19	Pontllanfraith—Twenty Cottages	Tredegar Junction Bldg. Club	Tredegar Junction Hotel, Tredegar Junction.
„ 20	Kirkcaldy—School, &c.	Burgh School Board	W. Williamson, 220 High Street, Kirkcaldy.
„ 22	London, E.—Stores, Cart and Van-Sheds, Lodge, Urinals, &c.	Stepney Borough Council	M. W. Jameson, 15 Great Alie Street, Whitechapel, E.
„ 22	London, N.—Dwarf Wall, &c.	Hornsey Urban District Council	E. J. Lovegrove, Engineer, Southwood Lane, Highgate, N.
„ 23	London, W.—Board Room, Offices, &c.	Hammersmith Bd. of Guardians	J. H. Richardson, 87 Finsbury Pavement, E.C.
„ 24	London, W.—Dwellings	Hammersmith Borough Council	H. Mair, Borough Surveyor, London, W.
„ 27	Wallsend—School Extension	School Board	Clerk, Board's Offices, Bewicke Schools, Willington Quay.
„ 29	Derby—School	School Board	A. Macpherson, Architect, Tenant Street, Derby.
„ 30	Wesham, Lancs—Workhouse and Offices	Fylde Union Guardians	Haywood & Harrison, Accrington.
Oct. 7	Acton, W.—Refuse Destructor	District Council	D. J. Ebbetts, 242 High Street, Acton, W.
„ 7	London, S.E.—Cartshed, Bothy, &c.	London County Council	General Section, Architect's Department, 18 Pall Mall East, S.W.
No date	Nottingham—Alterations, &c., to School	School Board	Evans & Son, Eldon Chambers, Wheeler Gate, Nottingham.
„	Aldershot—Schools	School Board	Fowler & Hugman, 9 Craigs Court, Charing Cross, S.W.
	ENGINEERING:		
Sept. 11	Andraitx, Baleares, Spain—Dredging	———	Office of the Ministry of Agriculture, Commerce and Public Works, Madrid.
„ 11	Styal, Cheshire—Electrical Wiring	Cholton Union Guardians	G. R. Peers, 16 John Dalton Street, Manchester.
„ 13	Downpatrick—Pump	Rural District Council	T. Earls, Portaferry.
„ 14	St. Petersburg, Russia—Two Bridges over River Neva	———	The Delegation Municipale, St. Petersburg.
„ 15	Launceston, Tasmania—Electric Power Transmission Extensions.	Mayor and Aldermen	J. Terry & Co., 7 Great Winchester Street, E.C.
„ 15	Cairo—Widening Canal	Ministry of Public Works	Inspector of Irritation, Projects Circle, Minia.
„ 15	Talybont, Wales—Waterworks	Rural District Council	B. L. Pritchard, 8 Castle Street, Brecon.
„ 15	Manchester—Valves, Steelwork for Bridge	Rivers Committee	J. P. Wilkinson, 47 & 48 Arcade Chbrs., St. Mary's Gate, Manchester.
„ 17	Southampton—Tramways	Corporation	Borough Engineer, Southampton.
„ 17	Barnsley—Filter Beds	Corporation	J. H. Taylor, Manor House, Barnsley.
„ 18	King's Norton, Birmingham—Electric Lighting Lease	Urban District Council	A. W. Cross, 23 Valentine Road, King's Norton.
„ 18	Reading—Tramways Materials	Corporation	J. Bowen & I. E. Winslow, Town Hall, Reading.
„ 19	Aston Manor, Birmingham—Coal Bunkers and Conveyor	Urban District Council	R. P. Wilson, 66 Victoria Street, Westminster.
„ 19	Sherburn, Yorks—Water Supply	Rural District Council	F. H. Read, 26A Dean Street, Scarborough.
„ 21	Duinbergen, Belgium—Three Piers on Beach	———	Rue des Augustins, No. 15, Brussels.
„ 24	Kingston-upon-Hull—Two Steel Girder Railway Bridges	North-Eastern Railway Co.	T. M. Newell, Engineer, Dock Office, Hull.
„ 24	Southampton—Fire Engine, Escape, &c.	Corporation	Superintendent Johnson, Municipal Offices, Southampton.
„ 24	Bury, Lancs—Tramways	Tramways Committee	A. W. Bradley, Borough Engineer, Corporation Offices, Bury.
„ 24	Middlesbrough—Reconstruction of Wharf	North-Eastern Railway Co.	T. M. Newell, Engineer, Dock Office, Hull.
„ 29	Vigo and Bayona, Spain—Electric Tramway	———	Office of the Ministry of Agriculture, Commerce and Public Works, Madrid.
„ 30	Port Adelaide, South Australia—Harbour	———	Agent-General for South Australia, 1 Crosby Square, London.
Oct. 7	Newcastle-on-Tyne—Electrification of Line	Directors, N.E.R.	Wilson Worsdell, N.E.R., Gateshead-on-Tyne.
„ 7	London, W.—Refuse Destructor	Acton District Council	D. J. Ebbetts, 242 High Street, Acton, W.
„ 15	Liscard, Cheshire—Boring	Wallasey U.D.C.	J. H. Crowther, Engineer, Great Float, near Birkenhead.
Nov. 14	St. Petersburg—Electric Traction on Tram Lines	Stadt Amt (Town Council)	Stadt Amt, St. Petersburg, Russia.
„ 30	Shanghai—Electric Lighting	British Municipal Councils	Office of the Board of Trade, 50 Parliament Street, S.W.
Dec. 13	Madrid—Canal Reservoir	———	Office of the Ministry of Agriculture, Commerce and Public Works, Madrid.
	FURNITURE:		
Sept. 23	East Ham—Furniture	Urban District Council	A. H. Campbell, Surveyor, Public Offices, Wakefield St. East Ham.
„ 23	Leeds—Furniture and Fittings for Police Station & Library	———	Bedford & Kitson, Architects, Greek Street Chambers, Leeds.
	IRON AND STEEL:		
Sept. 11	Salford—Pipes	Water Committee	Clerk, Town Hall, Salford.
„ 12	London, E.C.—Railway Stores	Burma Railway Co., Ltd.	Secretary, 76 Gresham House, Old Broad Street, E.C.
„ 12	Valetta, Malta—Pipes, Specials and Fittings	———	Crown Agents for the Colonies, Downing Street, London.
„ 15	Pietermaritzburg—Rails, &c.	———	Ford Brothers, 12 Southampton Street, Fitzroy Sq., London, W.
„ 15	Hendon, N.W.—Gates, Fencing, &c.	Urban District Council	S. S. Grimley, Engr., Council Offices, The Burroughs, Hendon, N.W.
„ 16	Bare, Morecambe—Railings, &c.	Poulton School Board	W. Tilly, 5 Morecambe Street, Morecambe.
„ 16	Rotherham—Stores	Gas Committee	H. Copnall, Town Clerk, Town Hall, Rotherham.
„ 16	London, E.C.—Railway Stores	Bengal-Nagpur Rly. Co., Ltd.	Secretary, 132 Gresham House, Old Broad Street, E.C.
„ 17	West Ham, E.—Iron Railing	Union Guardians	F. E. Hilleary, Clerk, Workhouse, Leytonstone, N.E.
„ 18	Hastings—Wrought-iron Fencing	Corporation	P. H. Palmer, Borough Engineer, Town Hall, Hastings.
„ 20	Leigh, Lancs—Pipes	Gas and Water Committee	J. Foster, Engineer, Gas and Waterworks Offices, Leigh.
„ 28	Menston—Iron and Steel, &c.	———	Clerk, Asylum Committee, County Hall, Wakefield.
„ 30	Copenhagen—Railway Stores	Danish State Railways	Construction of the State Railways, 10 Reventlowsgade, Copenhagen.
Oct. 2	London, S.W.—Railway Stores	Secretary of State for India	Director-General of Stores, India Office, Whitehall, S.W.
„ 9	London, S.W.—Chains and Springs	Southern Mahratta Rly. Co., Ltd.	E. Z. Thornton, 46 Queen Anne's Gate, Westminster, S.W.
	PAINTING AND PLUMBING:		
Sept. 11	Whiston—Painting and Cleaning	Rural District Council	J. Gandy, Architect, Hall Street, St. Helens.
„ 15	Halifax—Painting	Corporation	J. Lord, Borough Engineer, Town Hall, Halifax.
	ROADS AND CARTAGE:		
Sept. 11	Grays, Essex—Macadam	Urban District Council	A. C. James, Surveyor, District Council Offices, Grays.
„ 11	Ramsbottom, Lancs—Materials	Urban District Council	T. H. Bell, Surveyor, Council Offices, Market Place, Ramsbottom.
„ 12	Staines—Granite and Flints	Urban District Council	E. J. Barrett, Engineer, Town Hall, Staines.
„ 12	Halifax—Paving	Highways Committee	J. Lord, Borough Engineer, Town Hall, Halifax.
„ 12	Woodford, Essex—Street Works	Urban District Council	W. Farrington, Surveyor, Woodford Green.
„ 13	London, N.—Street Works	Southgate U.D.C.	C. G. Lawson, Council's Surveyor, Palmer's Green, N.
„ 15	London, W.—Granite	Hanwell U.D.C.	P. J. Dennis, Clerk, U.D.C. Offices, Hanwell, W.
„ 15	London, W.—Road Works	Hanwell U.D.C.	S. W. Barnes, Surveyor, U.D.C. Offices, Hanwell, W.
„ 15	Pontypridd—Granite and Limestone Metalling	Urban District Council	E. Rees, Surveyor, Council Offices, Pontypridd.
„ 16	Aldershot—Granite, &c.	Urban District Council	N. F. Dennis, Surveyor, Aldershot.

COMPLETE LIST OF CONTRACTS OPEN—*continued.*

DATE OF DELIVERY.		WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDERS MAY BE OBTAINED.
		ROADS AND CARTAGE—*continued.*		
Sept.	15	Felixstowe—Granite	Urban District Council	F. B. Jennings, Clerk, Town Hall, Felixstowe.
,,	16	Croydon—Road Repair	Town Council	Borough Road Surveyor, Town Hall, Croydon.
,,	16	London, N.W.—Relaying Wood Paving	Willesden District Council	O. C. Robson, Engineer, Public Offices, Dyne Road, Kilburn, N.W.
,,	17	London, S.W.—Making-up and Paving	Fulham Borough Council	F. Wood, Borough Surveyor, Town Hall, Fulham, S.W.
,,	17	Croydon—Making-up, &c., Streets	Rural District Council	E. A. Winder, Acting Clerk, Town Hall, Croydon.
,,	17	Croydon—Cartage	Rural District Council	E. A. Winder, Acting Clerk, Town Hall, Croydon.
,,	17	Eccles, Lancs—Street Works	Corporation	Borough Surveyor, Town Hall, Eccles.
,,	18	Liskeard, Cornwall—Steam Rolling	Rural District Council	A. C. L. Glubb, Clerk, Liskeard.
,,	29	Witham, Essex—Granite	Urban District Council	W. B. Blood, Clerk, Witham, Essex.
		SANITARY:		
Sept.	11	Ramsbottom, Lancs—Removal of Night Soil	Urban District Council	Inspector of Nuisances, Council Offices, Market Pl., Ramsbottom.
,,	15	Hastings—Pipe Sewer	Corporation	P. H. Palmer, Borough Engineer, Town Hall, Hastings.
,,	15	Northallerton—Drainage Works	Rural District Council	W. Fowle, Clerk, Northallerton.
,,	16	Dover—Sewers	Town Council	H. E. Stilgoe, Borough Engineer, Mason Dieu House, Biggin Street, Dover.
,,	16	Preston, near North Shields—Sewers	Tynemouth Corporation	J. F. Smillie, Borough Surveyor, Preston.
,,	16	Tutbury, near Burton-on-Trent—Sewerage Works	Rural District Council	Willcox & Raikes, 63 Temple Row, Birmingham.
,,	17	Aldershot—Sewers	Urban District Council	N. F. Dennis, Surveyor, Aldershot.
,,	17	West Mersea, Essex—Removal of House-Refuse, &c.	Rural District Council	C. H. Tompson, Clerk, Victoria Chambers, Colchester.
,,	17	Tonbridge—Sewage-Disposal Works	Rural District Council	W. V. Graham, 5 Queen Anne's Gate, S.W.
,,	20	Burnley—Sewerage Works	Rural District Council	S. Edmondson, 18 Nicholas Street, Burnley.
,,	22	London, W.—Barging away Dust, Slop and Manure	Kensington Royal Boro' Council	W. Weaver, Boro' Surveyor, Town Hall, Kensington High St., W.
,,	22	Epping, Essex—Sewers	Urban District Council	Surveyor, Epping.
,,	26	West Hartlepool—Sewer	Corporation	J. W. Brown, Borough Engineer, West Hartlepool.
,,	29	Uttoxeter—Sewerage Works	Urban District Council	Willcox & Raikes, Engineers, Union Chambers, 63 Temple Row, Birmingham.
Dec.	15	Monte Video—Sanitary Works	Government of Uraguay	Uraguay Legation, London.
		TIMBER:		
Sept.	12	Rothwell, Northants—Tree Planting	Urban District Council	W. T. Pearson, Surveyor, Rothwell.
,,	17	Leytonstone, N.E.—Oak Pale Fencing	West Ham Union Guardians	F. E. Hilleary, Clerk, Workhouse, Leytonstone, N.E.
,,	17	Portugal—Railway Sleepers	State Railways	Commercial Intelligence Branch of Board of Trade, 50 Parliament Street, S.W.
,,	29	London—Red Fir Telegraph Poles	General Post Office	S. C. Hooley, Controller of Stores, General Post Office, E.C.

COMPETITIONS OPEN.

DATE OF DELIVERY.		DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Sept.	14	St. Petersburg—Bridges over Great Neva River		St. Petersburg Gorodskaja Uprawa, St. Petersburg.
,,	15	Liverpool—Labourers' Dwellings	£250, £150, £100.	Town Clerk, Liverpool.
,,	15	Hastings—War Memorial to Local Men		B. F. Meadows, Town Clerk, Town Hall, Hastings.
,,	16	London, S.E.—Artizans' Dwellings	£100, £60, £40.	F. Ryall, Town Clerk, Bermondsey Town Hall, Spa Road, S.E.
,,	23	London, N.—Municipal Buildings, Fire Station, Baths, &c.	£200, £100, £50.	W. H. Prescott, Engineer, U.D.C. Offices, Tottenham.
,,	29	Bideford—Municipal Offices and Public Library	£30, £15, £10.	W. B. Seldon, Town Clerk, 18 The Quay, Bideford.
Oct.	1	Maidenhead—Free Library	£50, £20, £10.	John Kick, Town Clerk, Guildhall, Maidenhead.
,,	14	Newark—Alterations and Additions to Infirmary	£21.	Mr. H. Colton, Clerk to Guardians, 27 Lombard Street, Newark
,,	15	Strood—Infectious Diseases Hospital	£15 15s.	J. E. Povey, Clerk, Strood Union, Rochester.
Nov.	1	Allahabad—Memorial to Queen Victoria	2,000 Rs.	H. N. Wright, Indian Civil Service, Allahabad, India.
Jan.	31	Cape Town—University Buildings	£400, £200, £100.	Agent-General for the Cape of Good Hope, London.

Masters and Men.

The Trade Union Congress was held last week in the Holborn Town Hall. In offering the congress welcome Sir John McDougall, chairman of the London County Council, said that no persons who were not fair employers should step in, take contracts, and deprive the workmen of wages which it was agreed they should have. He had no hesitation in saying that one of the best things the Council had set up was the Works Department, which had caused the contractor to do his work in a better way and at a more reasonable price than would otherwise have been the case.—In the report of the Parliamentary Committee it was stated that in America the conditions of labour were very serious in the centres where trade unionism was weak. But with some exceptions the utmost consideration was shown workmen by employers. Cheaper and more rapid facilities of transport, together with superb natural advantages in mineral wealth, made America a formidable world competitor with us. The Trusts had not up to now made any bad use of their combination, wages having a tendency to increase. The delegates were pleased to see an approach being made to conciliation and arbitration in most of the States.—A resolution was passed in favour of limiting the hours of labour to eight per day in all trades and occupations in the United Kingdom. Another resolution was passed urging the need for an amended Compensation Act which will provide for all injuries, extended to all trades and employments, no matter where such accidents occur, compensation to be paid from the first day of injury. And another resolution was passed in which the congress expressed its utmost contempt for the continued obstinacy of Lord Penrhyn in persisting in his refusal to allow the points in dispute between himself and his workmen to be settled by independent arbitration, "and pledges itself to render every assistance in its power by money and Parliamentary agitation to carry this struggle against arbitrary feudalism and landlordism to a successful issue." Mr. Stevenson (London United Builders' Labourers' Union) moved a resolution stating that it was imperative in the interests of the building trades that inspectors should be appointed for the proper inspection of plant and machinery in constructional work in buildings in the course of erection or demolition. He instanced the Belfast mill disaster. Mr. J. Emerson (London Carpenters and Joiners) seconded the resolution, which was agreed to unanimously. A resolution was passed, on the motion of Mr. H. C. Bye (Navvies' and Builders' Labourers Union), instructing the committee to prepare a Bill which shall have for its object "the compulsory check-weighing or measuring in all metalliferous mines, quarries, public works, cement and lime factories, and all other non-textile factories." In reference to the vote on the previous day in sympathy with the Penrhyn quarrymen, the president announced that the Bricklayers' Society had resolved to raise £800 by a levy of 6d. on its members.

The Burton-on-Trent Stonemasons, who have been on strike since July 1st for an advance of wages, have notified their willingness to accept the offer of the Burton Master Builders' Association to submit the question to an arbitrator appointed by the Board of Trade. Pending the arbitrator's decision the men returned to work on Monday last, the employers undertaking to pay, from the time of the resumption of work, the rate of wages awarded in the arbitration.

Coming Events.

Wednesday, Sept. 10.

SANITARY INSTITUTE.—Congress at Manchester (Second Day.) Conferences of Municipal Representatives, Port Sanitary Authorities, Medical Officers of Health, Engineers and Surveyors to County and other Sanitary Authorities, Veterinary Inspectors, Sanitary Inspectors, Ladies on Hygiene, and on the Hygiene of School Life, in the Owens College and the Municipal School of Technology, from 9.30 a.m. to 2 p.m. Lecture by Mr. W. N. Shaw, M.A., D.Sc., F.R.S., on "The Treatment of Smoke: A Sanitary Parallel," in the Whitworth Hall, Owens College, at 8.30 p.m.

BRITISH ASSOCIATION.—Meeting at Belfast (First Day).

INSTITUTE OF SANITARY ENGINEERS.—Meetings of Examination and Literary Committee at 4 p.m., General Purposes and Finance Committee at 4 p.m., and Election Committee at 5.15 p.m. Members' Opening Sessional Meeting at 7 p.m. Presidential Address by Mr. F. J. Rayner.

Thursday Sept. 11.

SANITARY INSTITUTE.—Congress at Manchester (Third Day). Meetings of Section I., Sanitary Science and Preventive Medicine; Section II., Engineering and Architecture; and Section III., Physics, Chemistry and Biology, in the Owens College and the Municipal School of Technology, 10 a.m. to 2 p.m. Conversazione and Reception at 8.30 p.m.

Friday Sept. 12.

SANITARY INSTITUTE.—Congress at Manchester (Fourth Day). Sectional meetings continued, 10 a.m. to 2 p.m. Closing meeting of Congress in Owens College at 1.30 p.m. Popular lecture by Sir W. J. Collins, M.D., B.Sc., F.R.C.S., in the Municipal School of Technology, at 8.30 p.m.

Saturday Sept. 13.

SANITARY INSTITUTE.—Congress at Manchester (Fifth and last Day.) Excursions and visits to places of interest.

ARCHITECTURAL ASSOCIATION.—Sixth Summer Visit to view Church and Monastery of St. Francis, at Bocking Bridge, Essex, by the late J. F. Bentley.

Saturday Sept. 20.

NORTHERN ARCHITECTURAL ASSOCIATION.—Visit to Newcastle.

New Companies.

Engineering Price List, Ltd.

Registered to acquire the business now carried on under the style of the Engineering Price List. Capital £10,000 in £1 shares. The directors are G. W. Truscott, H. D. Truscott and A. Bennett. Registered office: 152, Upper Thames Street, E.C.

George Sellers & Sons, Ltd.

Registered to acquire the business hitherto carried on at Dukinfield as George Sellers & Sons, and to carry on the business of cabinet makers, &c. Capital £10,000 in £1 shares. The first directors are W. H. Sellers, F. Sellers and J. Sellers.

British Compoboard Co., Ltd.

Registered to adopt an agreement with A. Koenig and P. J. Machin to manufacture and deal in the article called compoboard. Capital £30,000 in £1 shares. Registered office: 18, Roscoe Street, E.C.

Cross Incandescent Light Co., Ltd.

Registered to carry on the business of manufacturers, merchants and agents for incandescent mantles, gas and electric fittings, &c. Capital £1,000 in £1 shares. The first directors are J. Meyerorvitz and O. Hauff.

Michael Stocks, Ltd.

Registered to acquire and carry on the business of a house decorator and painter now and hitherto carried on by Michael Stocks at 1, Dellar Street, Edenfield Road, Rochdale, and to carry on the business of dealers in paints, oils, pigments, varnishes, wall papers, cements and other compounds. Capital £500 in £1 shares.

Rolls & Co., Ltd.

Registered to adopt an agreement with A. F. Rolls, and to carry on the business of varnish, paint and colour manufacturers, white lead and zinc manufacturers, grinders, oil boilers and refiners, glass, lead and oil merchants, sheet lead rollers, lead pipe drawers and shot manufacturers, sanitary ware manufacturers, timber merchants, sawmill proprietors, &c. Capital £15,000 in £1 shares (6,000 preference). Governing director, A. F. Rolls.

Palmer's Green Estates Co., Ltd.

Registered to acquire certain land and other property at Palmer's Green. Capital £5,000 in £1 shares. The directors are J. W. Wright and J. Patchett. Registered office: 21, Bridges Street, Bradford.

Taffs Well Building Co., Ltd.

Registered to acquire any lands, estates and other property at Taffs Well, Glamorganshire; to erect thereon houses, shops and other buildings, &c. Capital £20,000 in £10 shares. The first directors are T. Gregory, R. T. Richards, H. Morgan, D. Beynou and E. Owen. Registered office: Albert Chambers, High Street, Cardiff.

Stone & Co., Ltd.

Registered to acquire the business of a company with a similar title registered in 1900, and to carry on the business of brick masters, merchants and manufacturers of all kinds of building and sanitary materials. Capital £28,350 in £1 shares. The first directors are E. Boyle, E. Symes and P. Tocher. Registered office: 3, Lothbury, E.C.

Percy C. Webb, Ltd.

Registered to acquire the business carried on by P. C. Webb in England and Italy as a marble, stone and granite merchant, and to carry on the business of stone and granite merchants, quarry and sawmill owners, masons, sculptors, importers and exporters, &c. Capital £25,000 in £1 shares. The first directors are P. C. Webb and G. Brewis. Registered office: The Marble Quay, St. Katharine Dock, E.C.

Steelhouse Lane Brick Co., Ltd.

Registered to adopt an agreement with A. Gregory for the acquisition of the business of a brick manufacturer, carried on by him at Steelhouse Lane, Wolverhampton, and to carry on the general business of brick, tile, earthenware and terra-cotta manufacturers, &c. Capital £1,000 in £1 shares. The directors are A. Gregory, W. T. Clewes and A. E. Ryder. Registered office: Steelhouse Lane, Wolverhampton, Staffordshire.

J. H. Pearson & Co., Ltd.

Registered to acquire the business carried on by J. H. Pearson at Sussex House, Leadenhall Street, E.C., and to carry on the business of colliery proprietors, dealers in coal, coke, bricks, earth and minerals, &c. Capital £3,000 in £1 shares (2,990 ordinary and 10 founders'). The first directors are J. H. Pearson and E. W. Hart. Registered office: Sussex House, 52, Leadenhall Street, E.C.

Alliance House and Property Trust, Ltd.

Registered to acquire by purchase, lease, exchange or otherwise any lands, estates, houses, shops, offices, factories, warehouses, hotels and other buildings; also as builders and contractors, dealers in all kinds of builders' materials, stone merchants, lime burners and dealers, brick, tile and terra-cotta manufacturers, &c. Capital £20,000 in £1 shares. Registered office: Corporation Chambers, Guildhall Yard, E.C.

London Building Co. Ltd.

Registered to establish and carry on in London and elsewhere the business of builders and contractors, &c. Capital £2,000 in £1 shares.

Hine & Waters Flexicle Cowl Co., Ltd.

Registered to adopt an agreement with C. O. Hine and G. G. Waters for the acquisition of certain patent rights relating to an article known as the "Flexicle cowl," and to carry on the business of hardware manufacturers, engineers, plumbers, lamp-makers, glass and talc merchants, dealers in old metals, &c. Capital £10,000 in £1 shares. The first directors are C. O. Hine, F. G. Waters, T. A. Hearson, C. H. Hine, G. F. Banks and M. J. R. R. Spring.

Charles S. Bailey, Ltd.

Registered to acquire the business carried on by C. S. Bailey at 112, Victoria Street, Bristol, and elsewhere, to adopt an agreement with C. S. Bailey, and to carry on the business of manufacturing ironmongers and merchants, manufacturers of plated goods, &c. Capital £30,000 in £1 shares. The first directors are C. S. Bailey (chairman) and E. A. Green. Registered office: 112, Victoria Street, Bistol.

Crewe Brick and Sand Co., Ltd.

Registered to acquire the undertaking of Merrill's Brickyard, situate at West Street, Crewe, Cheshire, and to carry on the business of brick, tile and terra-cotta makers, pipe makers, lime burners, &c. Capital £1,500 in £1 shares. Registered office: Merrill's Bridge Brickyard, West Street, Crewe, Cheshire.

Green & Sons, Ltd.

Registered to acquire as a going concern the business of timber merchants as now and hitherto carried on at 41, Pitfield Street, Hoxton, by L. Green as Green & Sons, and generally to carry on business as timber merchants and brokers, veneer cutters, &c. Capital £10,000 in £1 shares. Registered office: 41, Pitfield Street, Hoxton.

St. Mary's Catholic Church, Malton, is being re-roofed, refloored and re-seated by Mr. Anthony Lyons, contractor, of St. Peters' Works, Norton, Malton.

At Christ Church Cathedral, Oxford, a font cover has been placed. It has been designed by Mr. Bodley, R.A., and is mainly of carved oak. It is not suspended from the roof, as is usual with large spire-like covers, but stands on the font, and is provided with doors to give access to the bowl. The ornamentation is most elaborate, and the whole erection reaches almost to the roof of St. Lucy's chapel.

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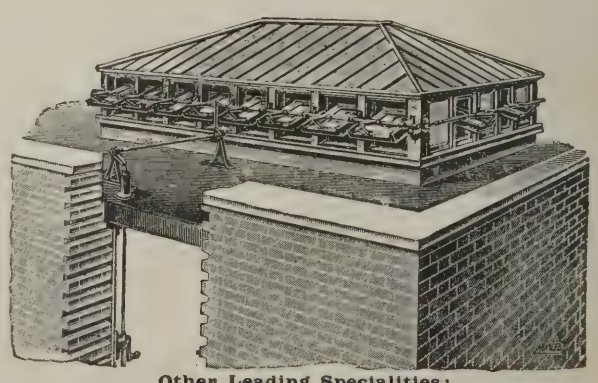
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Telephone Nos. 2953 Central, 1874 Gerrard.

An Architectural Causerie.

Three Men. [Scene: A private room at the Office of Works.] Lord W. to Lord E.—"Ah, there you are. I thought I would just pop in to see you about a few matters." Lord E.—"Delighted. Take a seat." Lord W.—"I will not stay long, but I'm somewhat puzzled about this new appointment. Of course it's very nice to be secretary, but people are so unreasonable nowadays, for they actually expect you to know something about buildings and architects and all those kinds of things; and how should I know that?" Lord E.—"Oh, I shouldn't trouble myself. I did very well, and I assure you—of course between ourselves—that I don't know the difference between a Doric column and any other. All you have to do is to assume a knowledge of the details, which are therefore beneath discussion, and generalize officially. But here's another visitor. Why, it's A.-K. Yes, excellent, isn't it. Congratulations, of course; but just fancy being bothered about your official ignorance of a subject: why, it's the very thing to pull one through." Mr. A.-K.—"Well, I find it all goes smoothly enough when there are no pig-headed executors or art-instilled members of the Upper House to worry you. But when that happens, the pay isn't sufficient compensation for the trouble." Lord W.—"How much did you say?" Mr. A.-K.—"Why, a paltry £2,000 a year. And just think what I have to do for it." Lord E.—"Wonderful devotion to duty. A martyr." Lord W.—"I hope I shall not be so bothered." Mr. A.-K.—"First it's one architect that dies and then another, leaving their work unfinished; and of course it would be all right if I were only left alone to do what is necessary. There's a staff here for that very purpose. For what else do you think we pay one architect £1,200 a year and three more £1,000 each, besides a host of subordinates, all geniuses in their own way. They talk about the Record Office. But it's simply superb, and right in face of them we've put up a charming little lodge on the Fetter Lane side, just to show, you know, that the Office of Works is capable of preserving intact the individuality of another's hand, instead of parading an arrogant self-styled personality." Lord W.—"Quite so. I have seen the little lodge you speak of. Very fine." Lord E.—"So have I. It's in what you call the Classic style, I believe." Lord W.—"Oh! no, the Gothic—Flamboyant you know. Isn't that so, First Commissioner?" Mr. A.-K.—"Yes, yes. Well, not exactly. A kind of mixture, you know. Just enough to remedy it from dulness." Lord W.—"Ah, by the way, I must congratulate you, E., on that wonderful annexe. I couldn't believe my eyes." Lord E.—"Just a trifle, you know. One of those little things we do in spare moments—unostentatiously, you know, with none of that bluster so characteristic of our critics." Mr. A.-K.—"You really should have allowed it to remain as a permanent example of what you can do when the call comes; instead of selling it as scrap to a builder. Indeed, I think it was quite as good, if not better, than the Abbey itself: only of course one daren't say that officially, otherwise it might be taken for egotism." Lord W.—"I quite agree with you." Lord E.—"As I say, we do things quietly. Compare our action, for instance, with that taken in regard to the Queen Victoria Memorial. What a fuss they made." Mr. A.-K.—"Exactly. We should have done much better, and much cheaper, too. Besides, we might have had statues of ourselves, you know—just a select few—disposed around as a slight recognition of our ability. I am sure, W., you would look well on the top of a column, or posed artistically in a group symbolic of the Office of Works, with an inscription below—'Alone we did it; it were better so.' While I myself might be pouncing out on the Child of Darkness with an outstretched spear or a pair of compasses." Lord E.—"And what about myself?" Mr. A.-K.—"Oh, why, you could be sitting in the Chair of Truth with a model in one hand, while with the other you could be bruising the head of the Architectural Critic." [Much laughter, which continues as the three go out together for their lunch.]



DRAWN BY HEATON COMYN, A.R.I.B.A.

"White Lion Inn," Oundle. This is one of those picturesque old country hostels to be seen in Northamptonshire. It is a typical example of domestic work in that county—note especially the finials to the dormers and the corbelling-out of the sides of the dormer windows. The inn is situated on the east side of the church in the main street up from the railway station. There is another inn—the "Talbot"—in Oundle similar to it, one which is more generally sketched, but the "White Lion" is certainly the more interesting as a study of Northamptonshire domestic architecture.

OLD FURNITURE IN THE SOANE MUSEUM.

By X.

CONSIDERING the general taste and the love of collecting of the late Sir John Soane (borne 1753—died 1837), whose house in Lincoln's Inn Fields is by special Act of Parliament permanently preserved as a museum in the interests of all who are in any way connected with the profession of architecture and decoration, and considering the very great extent of his collection of architectural and furniture designs, the actual furniture of his house is, as regards variety and special interest, somewhat of a disappointment.

There are, however, a few pieces which are well worth an inspection, and it is with these that the writer wishes now to deal.

Fig. 1 shows a very fine Chippendale arm-chair purchased by Sir John Soane about 1780, just when the productions of this epoch-making furniture designer were at



FIG. 2.—OLD ENGLISH CHAIR (DATE PROBABLY ABOUT 1730).

their zenith. The decoration is striking, the carving including floral, shell, scroll, portrait and ornamental design work, yet each so introduced as not in the least to spoil the harmony of the whole. The seat front is in three segmental curves and is plain cane-seated. The arms join the frame by a curve from the back and the centre scroll of the latter joins the back frame similarly by means of a graceful curve over the front at each side.

In the same room—namely, the combined dining-room and library—are eight old English chairs (see Fig. 2). They are of singular design, richly inlaid with mother-of-pearl, and bear the arms of Sir Gregory Page, Bart. (the son and heir of Sir Gregory Page, of Wricklemarsh, near Blackheath, created a baronet in 1714), with those of his wife, Martha, third daughter of Robert Kenward, Esq., of Yalding, Kent. The suite probably came from Wricklemarsh, which was sold by the nephew, Sir G. Page Turner, in the year 1733 to the Cators of Beckenham. The date of manufacture is considered by Mr. G. H. Birch, F.S.A. (the curator of the Soane Museum), to be probably about 1730. The style is distinctly Hogarthian — in fact, chairs almost identical in pattern and design, save for the inlaid work, are to seen in several of that master's paintings.

Fig. 3 shows a massive and very handsomely-carved walnut side-table which was formerly in the possession of Sir Robert Walpole. On the top of this table is a slab of marble inlaid with a variety of specimens of rare marbles and other precious stones.

We next come to a very strange piece of furniture —Fig. 4. This chair is one of a pair cast in iron and weighing about half a hundredweight each. They were drawn by Sir John Soane himself and specially made for him. A writer once suggested that this chair might well be copied in a dark wood, "the unsightly bolts necessitated by the iron being of course eliminated as it is most effective and distinguished in appearance besides being comfortable for use," but with this kind of proposal no person of taste will in any way agree.

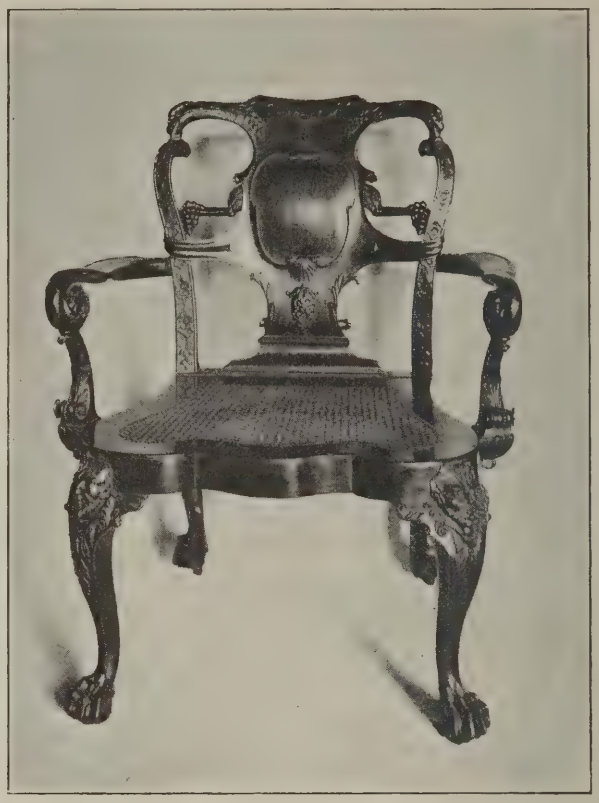


FIG. 1.—CHIPPENDALE ARM-CHAIR.

Fig. 5 shows a slight double settee by Adam, both elegant in design and chaste in execution. The upholstery, at the present time of dark leather, is not in good keeping with the frame. Originally it was doubtless covered in some silk of delicate colour and pattern that harmonised more with the slight and graceful frame, the wood of which is rosewood.

Fig. 6 shows one of a pair of handsome old English carved oak chairs. It is just the kind which might be made use of as a model by such misdirected manufacturers as now turn out so much "black oak." The legs and under-frame would of course on the ground of cost be unsuitable for modern cheap furniture, but the carved back offers a great field for the mechanical duplicator.

A real Sheraton arm-chair is shown in Fig. 7. The double curve of the arms, the fluted column legs and side pieces and the trellis back are all characteristic of this master.

[The Soane Museum is situated on the north side of Lincoln's Inn Fields (No. 13) and is open free from 11 to 5 on Tuesdays, Wednesdays, Thursdays and Fridays during March, April, May, June, July and August. It is a most interesting museum for an architect to visit.]

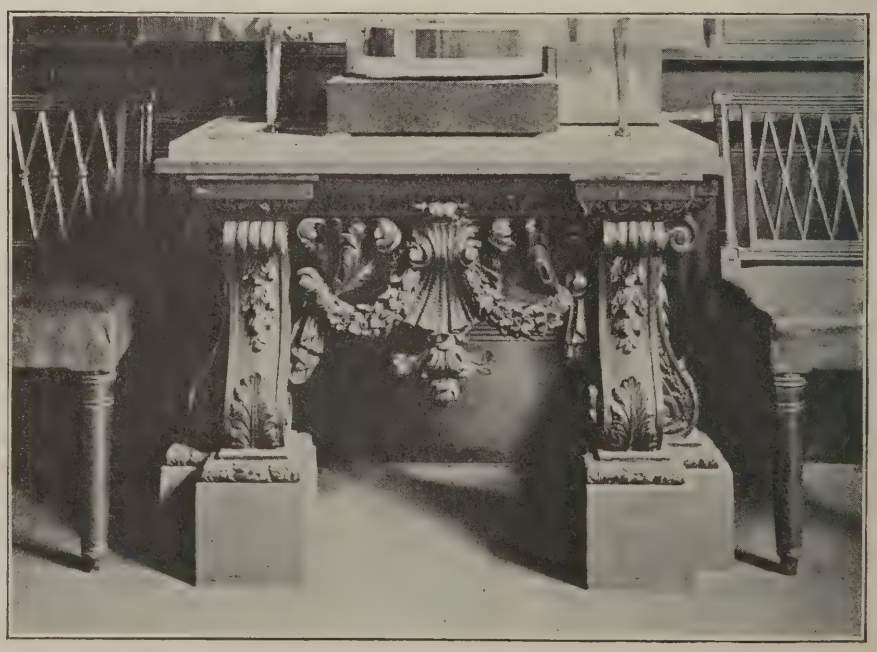


FIG. 3.—WALNUT SIDE-TABLE.

THE TREATMENT OF SMOKE.*

A SANITARY PARALLEL.

By W. N. SHAW, M.A., Sc.D., F.R.S.

FOR the sake of clearness I wish to cast what I have to say in the form of a parallel or analogy. I wish to regard the smoke in fog as the element of the problem to which special attention should be directed, and to regard the smoke as a species of domestic or industrial refuse which has to be removed somehow or other. I propose to look upon the removal of smoke as a problem not dissimilar in its fundamental character from that of the removal of sewage, and in what I have to say I wish to keep in view the analogy that exists between the elements of these two problems. I choose the problem of the removal of sewage for this purpose, because it is a problem in which sanitary reformers have achieved gradual but conspicuous success during the nineteenth century, and even within the memory of the present generation, to the great advantage of the whole community.

In large towns we have travelled very far in the path of development from the original instinct as regards the problem of the disposal of sewage-polluted water, but there has been no corresponding progress in the disposal of smoke-polluted air. In London, at a cost to the community of £211,000 a year, or 1·38d. in the pound on ratable value, nearly a million tons of sewage are removed day by day for about 600,000 houses—about a ton and a half on the average for each house.

During the same period, namely every day in winter, each house throws into the atmosphere on the average perhaps ten tons of smoke-laden air, or a total quantity of five million tons of smoke-laden air for the inhabited houses of London per day, or possibly seven millions of tons per day if we include factories.

That is my estimate, on grounds which I will give later, of the amount of refuse which we throw into our atmosphere for beneficent chance to remove, if it can. The actual weight of solid soot which gives colour and body to the smoke is a very uncertain quantity; it may in the worst cases amount to nearly 3 per cent. of the coal consumed, and the houses of London probably get rid of 300 tons of solid refuse every day by throwing it up the chimney. It is mixed with much larger quantities of other more or less injurious products of the combustion of coal, complete or incomplete; but it is with the soot, which alone darkens and defiles, that I am primarily concerned.

The Initial Stages of the two Problems.

The difference of our attitude towards these two problems is very conspicuous, yet, physically speaking, the whole difference between the problem of the removal of sewage and that of the removal of smoke on similar lines lies in the comparatively trivial distinction that under the action of the mysterious force of gravity the sewage naturally goes downwards, whereas, in the first instance, smoke goes upwards.

You may object that I have neglected to take into account the relatively large volume of smoke as compared with that of other forms of house-refuse; I simply reply that if the smoke of our fires had been in the habit of falling downwards and finding a lower level instead of rising to a higher level and making its way up the chimney, we should long ago have been driven into solving the problem of its disposal as we have been driven to deal with the disposal of sewage, no matter how great the volume might be.

The mention of the circumstance that



FIG. 4.—A CAST-IRON CHAIR.

smoke goes upwards instead of downwards leads me to point out that in days not so very remote the arrangements for the disposal of smoke might be regarded as comparatively in advance. The genius who first conceived or put in practice the idea of confining smoke to a narrow flue specially built for it wrought a revolution in house-building. There are still archæological survivals which show that before his day there were architects who were satisfied with the more simple provision of a hole in the roof, and there are even traces extant of a still earlier architectural style of inhabited dwelling in which such rudimentary provision as a special opening for smoke did not exist.

I will spare your feelings: I will not attempt to describe the corresponding stages in the development of the means of disposal of other kinds of refuse: they could be traced—*gardy loo* is the survival of a warning with special meaning in the Scottish capital—and examples of present-day practice might be adduced in illustration. But while the disposal of sewage has been generally though slowly progressive since the first commissioners of sewers were appointed in 1531, the invention of the chimney seems to have been so successful as to paralyse mechanical enterprise in that department until the subject was taken up in later years by cowl makers, who have devoted much ingenuity to the improvement of the terminal outlet.

I am not overlooking the fact that immense improvement has been made in grates for burning coal, both as regards economy of fuel and in some examples as regards the amount of smoke produced. That is another branch of the subject; at the moment I am concerned with the disposal of the waste products independently of the amount produced, and for domestic purposes the simple chimney, with or without the assistance of a cowl, remains a sufficiently effective apparatus; the practice of using it to throw smoke into the atmosphere, to be carried away by any currents of air that may arise, is universal.

Smoke and Fog.

One of the incidental obstacles to a scientific treatment of the smoke question is that at first sight the atmospheric currents appear to perform the duties of general scavenger with such exemplary efficiency that few people give any thought to the general success or failure of the method itself. On foggy days they become aware of the nuisance which they have created, and accordingly desire that steps should forthwith be taken to remove or prevent fogs, with the understanding that whatever does away with the fog will at the same time do away with the smoke nuisance. Now the prevention of fog as a meteorological phenomenon is one of the demands which I think we are not legitimately entitled to ask as practical men of science; it is beyond the ambition even of physical science. To use the parallel further it would be just as reasonable for us to throw all our refuse into the streets, and, when we found that it accumulated beyond endurance, demand of men of science that they should provide showers at suitable intervals to wash it all away.

There remains for us to consider the removal of fog by the actual removal of the foggy air of London. I have on several occasions seen suggestions which seemed to regard such a scheme as possible, but I have never been able to understand where the air would be sent to and by what it would be replaced. A heavy snowfall, which may give about 10 tons of snow for every 100yds. of street, defies the powers of local authorities to remove it, and the removal of the street air, of which 17ft. of height would give the same weight for the same length, might well be regarded as beyond the



FIG. 5.—DOUBLE SETTEE BY ADAM.

* A paper read before the Sanitary Institute Congress at Manchester on September 10th, 1902.



FIG. 7.—SHERATON ARM-CHAIR.

resources of civilisation, even if it could be loaded up in carts. That is out of the question, and I think we may agree that the removal of foggy air from the streets is as hopeless a matter as the prevention of fog, and that when once smoke has been allowed to be discharged into the free atmosphere all chance of removing it is gone.

Some Facts about the Smoke Nuisance.

Moreover, it is not only on foggy days that the method of leaving the atmospheric currents to act as the smoke scavengers fails. In large towns the system is, generally speaking, inefficient. It is a matter of common knowledge that one of the results of London smoke is a very considerable reduction of the amount of sunshine and daylight. We may say that in summer London loses one-sixth of its sunshine, and presumably also about the same fraction of its daylight, on account of its smoke, while in winter its loss amounts to one-half for a similar reason.

The contrast of the figures for summer and winter is remarkable. As regards smoke, the difference rests chiefly on the fact that there are fewer domestic fires in summer, and we may therefore legitimately conclude that the domestic smoke is the most serious item to be reckoned with in considering the smoke question. It is, in fact, two-thirds of the problem. During the past winter Captain Carpenter, R.N., D.S.O., has been conducting an enquiry for the Meteorological Council into the prevalence and distribution of fogs in London, and in the course of his investigation has ascended on separate days in each week the Victoria Tower at Westminster and the upper gallery of the dome of St. Paul's Cathedral. These two buildings are a mile and a half apart as the crow would fly, but on no single day was Captain Carpenter fortunate enough to be able to discern the one building from the other until March was well established. There is here no question of persistent fog: it is smoke.

What steps can we take? So far as I know, the only suggestion put forward as practicable by those interested in the abatement of the smoke nuisance is to invite householders and compel factory owners not to make smoke, or to consume it if they do make it, or, in the third event, to make as little as may be consistent with their own interests. As regards factories, very considerable improvement has followed these efforts, and I do not wish to be adversely critical when I point out, first, that the distinction drawn between the factory and the domestic establishment is unscientific, and, secondly, that that was not the plan adopted in the parallel case of the removal of sewage. Am I not right in saying that the advance in sanitation, in that particular, has arisen from the fact that the local authorities have used common funds to provide facilities for the removal of such refuse by main drains or otherwise, and have then compelled householders and others to make use of the facilities provided?

Municipal Chimneys.

I would like to follow the analogy somewhat further, and subsequently call attention to the share which a local authority could fairly take in such an enterprise, supposing it were agreed that the proper course to be pursued is not to prevent smoke by penal legislation but to encourage the interception of smoke and the removal of the sooty particles before the air is allowed to escape. I do not wish to say that this is the only or the best mode of dealing with the question; I only want to consider whether it is, *prima facie*, practicable enough to justify our including enquiries with regard to it in the demands that sanitation may reasonably make upon science.

The suggestion may seem hopelessly extravagant, but if you will allow me I will offer a few considerations in mitigation of your criticism of my venturesome proceeding.

First, there is nothing new under the sun—since I commenced putting my notes together I have learned that practically I am only recalling a suggestion made many years ago. A proposal for the treatment of smoke by the erection of municipal chimneys was made in Manchester by one who was prominent among the many Manchester men of business who have been distinguished by their scientific achievements, Mr. Peter Spence.

Secondly, the present method of dealing with smoke is by no means final, although, as I have said, it has marked a most important stage of progress In many cases it achieves its primary purpose excellently, yet one of the most conspicuous features of London architecture is the enormous variety of smoke cowls in all stages of dilapidation to be seen surmounting the roofs. Almost every chimney stack is a sort of museum of contrivances for improving the action of chimneys. I do not know what precise meaning to attach to the different states of dilapidation, but the mere exhibition of so many contrivances can only mean that smoky chimneys are not by any means so rare as they might be under more favourable mechanical conditions. I should be glad if someone would be good enough to remark that the differences of height of roofs of the London houses make the treatment of smoky chimneys especially difficult, because that would enable me to put my second consideration the more forcibly by saying that on that very account, if on no other, the separate chimney method of dealing with smoke is not suited to the circumstances of large towns.

Thirdly, I notice that when the designer of a factory erects his building he takes a further step in advance in the treatment of smoke, and provides a single smoke stack for a considerable number of independent fires. The existence of this practice makes me regard the separate opening of each chimney of the domestic house into free air as not absolutely required by any physical laws governing the removal of smoke. The factory builder is not always successful in using his chimney for preventing smoke, but he is successful in leading the foul air of many flues into one channel which might afford an opportunity for depriving the smoke of its soot.

Moreover, arrangements for propelling air mechanically are becoming every day more extended. Some of them as employed in various systems of ventilation are quite as elaborate as any that would be required to deal with the smoke of an ordinary house or block of houses. A public dining-room is hardly regarded as properly equipped in the present day unless it has a fan for the ventilation, generally for the removal of tobacco smoke after dinner. Laboratories and other buildings of a similar character are provided with special means, mechanical or thermo-mechanical, for removing noxious fumes. There is no sufficient distinction to be drawn between coal smoke and other forms of refuse that foul the air to make it necessary to use one system for the former and a different one for the others. It thus seems almost certain that if the domestic architect had sufficient encouragement to make the attempt, he would not find the plan of dealing with household smoke by the method of the factory chimney or by mechanical propulsion beyond the range of practical physics.

The plan of using a single combined orifice for the delivery of the smoke of a number of chimneys of a domestic building has



FIG. 6.—OLD ENGLISH CHAIR (OAK).

actually been introduced in the case of a building that had originally, and still has, its separate flues, unless I have been deceived by external appearances. Within sight of the windows of my office is a row of three houses the roofs of which are much below the level of surrounding buildings. Most chimneys in such situations in London are separately provided with some sort of cowl, but in the case I speak of groups of four chimney stacks at the angles of a square have been capped, and a single flue led from each stack to a central chamber surmounted by a large lobster-back cowl. From this central cowl the smoke of the four chimney stacks is delivered to the outside air. This example seems to me to be especially encouraging, because it shows that if it were desirable to drain away the smoky air of houses with a view to "treatment" it might not be considered necessary to entirely rebuild the houses.

The cost of dealing with the sewage of London is about £600 per day. I have of course no means of estimating what the cost of dealing with smoky air would be, but supposing that a ton of dirty air could be "treated" for the same cost as a ton of sewage, the cost of clearing the air of London might be set down at £4,200 a day, equivalent to a rate of 10d. in the pound.

I would mention incidentally that to move air is a comparatively cheap matter. An electrically-driven fan will do the day's work of a single chimney, as regards smoky air, at a cost of about a penny, under suitable conditions. A single colliery fan has been made to deliver as much as 200,000 cub. ft. of air per minute, and its output therefore amounts to about 10,000 tons a day, or sufficient to carry the smoke of more than 1,000 London houses on the scale mentioned above. Five hundred of such fans would carry the household smoke of the whole of London. It would mean a huge aggregation of power, but London means the same.

These figures show that although the volume of smoky air is vastly larger than the volume of sewage, yet the cost of dealing with it for the purpose of treatment may not be of an altogether different order of magnitude from the cost of the manipulation of London sewage, and the point at which I wish to arrive is that we are justified in asking practical men of science, as a first question, whether the treatment of smoky air, on a plan somewhat similar to the treatment of sewage, is mechanically possible within reasonable limits of original outlay and current expense.

I do not suppose that it is possible to establish a few main drains for smoky air corresponding to the main sewage drains, and to use one or two cleansing stations for purifying the air from smoke. I made a rough calculation, and concluded that to deal in that way with the smoky air of London would require about forty tunnels of the size of the Underground Railway tunnels to carry away the air, but in the case of air it might be possible to achieve a similar result by a large number of systems on a correspondingly small scale, and the systems might be some of them municipal and some private. A single block of houses might have means for drawing off the smoke from all its fires into a chamber wherein the smoke could be treated before the fouled air was allowed to pass into the atmosphere, and if such a system were mechanically feasible we should then be able to put a second question to practical men of science, namely, whether it is not possible to completely deposit from the air as it passes on its way the solid particles which form the smoke. I should like to ask whether it is not possible to make a further advance in the direction indicated by Sir Oliver of purifying air from smoke by electricity.

It ought in fairness to be pointed out that the successful treatment of smoke would not do away with the effects of fog altogether. Under the most favourable circumstances as regards smoke there would still be fog, and probably more fog in London and other large towns than elsewhere, on account of the acid fumes among the products of combustion. The fog would be white, and white fog itself would cause serious interference with road, river and railway traffic as it does with sea traffic now. But the large number of London fogs that are smoke and nothing else would disappear, and the avoidance of these and the abstraction of the smoke from the others would very largely diminish the losses attributable to fogs.

The questions I have suggested as suitable for being put before practical men of science are two, namely: first, whether it is mechanically and economically possible to substitute for the present system of chimneys a method of collection of the used air of houses by mechanical or thermo-mechanical means, so that it may be subjected to treatment before being delivered to the outside air; and, secondly, whether under these circumstances it would be possible to deposit the soot, electrically or otherwise, in some part of the course of the air.

Smoke-removal and its relation to Ventilation.

I would like to point out that such a system would have some incidental advantages. It would provide a persistent and calculable system of ventilation that would enable hot-water or steam pipes to be used advantageously much more generally than they can be at present.

The ventilation of a domestic house under existing conditions is very largely dependent upon its active chimneys, and has to be treated accordingly. If one could rely upon the regular abstraction of a definite quantity of air, it would be possible to modify the arrangement in various ways for the general convenience of the household. And not the least among the advantages of such a system must be reckoned the facility it would afford for diminishing the amount of smoke produced independently of the facilities for removing it after production. At the trials in connection with the Smoke Abatement Exhibition, South Kensington, the most effective results were obtained with grates that had what may be called a downward draught, that is, a draught that carried the smoke from the external coal through the fire. To manage a grate of that kind in an ordinary house requires special arrangements, but with the provision of means for the constant abstraction of air it would be easy to secure these most favourable conditions.

Contribution of Local Authorities to the Problem.

If an enterprising architect were to erect a block of buildings and provide it with means of delivering its used air free of smoke at an outlay of, say, £1,000, with an annual cost of £25 for maintenance, I presume the local authority would reward him for his public spirit by increasing the ratable value of the property on account of the outlay, and thus fine the owner a considerable sum per annum for his rash enterprise. The owner would also be placed in the unfortunate position that whereas by avoiding smoke he had conferred as much benefit upon all his neighbours as upon himself, he would have to pay the whole fine of increased ratal himself, and would still have all the disadvantages of his neighbours' smoke.

I would suggest that, instead of pursuing so unreasonable a course, the local authorities might recognise public spirit of this kind by reducing the assessment of a property that, to the satisfaction of its neighbours as well as of a surveyor or inspector, produced no smoke, so that the rates upon such a property should be decreased by, say, 6d. or 1s. in the pound instead of being increased. This would afford direct encouragement to practical men of science to design and keep in action means for the prevention of smoke, and would lead to gradual improvement.

Such a system would, as I have suggested, be in the first instance a direct encouragement to progressive experiments, and in the end would enlist the active support of all those possessing arrangements for avoiding smoke in favour of effective compulsion for those who had not.

To put the questions I have indicated to men of science in this way would be merely a matter of business, and if the questions were so put I venture to express the confident opinion that the science of the twentieth century would give as satisfactory an answer to the question of the treatment of smoke as the science of the nineteenth has given to the question of the treatment of sewage.

Writing to the "Morning Post" Mr. Ellinor C. L. Close says: "Last spring I contracted with a firm of builders to connect the chimneys of the mews at the back of Eaton Square into one horizontal flue, which is to be connected with the main chimney of one of the largest houses in this block; and I think the draught thus created will effectually remove the discomfort caused to many of the dwellers in the mews by their smoky fireplaces."

THE A.A. BROWN BOOK.

THE Brown Book of the Architectural Association for 1902-3 has just been issued. We note that a few changes are made in the list of evening lecturers and instructors. Formerly Mr. F. R. Farrow, F.R.I.B.A., took elementary construction and materials; English architecture to A.D. 1500; outlines of mediæval and Renaissance architecture in Europe; and construction. The first of these subjects is now taken by Mr. C. E. Varndell, A.R.I.B.A.; the second by Mr. A. M. Watson, B.A., A.R.I.B.A.; and the third by Mr. Banister F. Fletcher, A.R.I.B.A., who also, in place of "construction," deals with Classic ornament. The syllabus of meetings is as given on p. 42 of our issue for September 3rd; but we note that the annual conversazione will be held on October 31st at the Royal Institute of Painters in Water-Colours. The subject set for the A.A. silver medal is: "A town hall for a small country town on an isolated site 100ft. by 60ft., the long side to be treated as the principal side." The subject of the essay prize is: "The life, work and influence of Robert Adam and his brothers." The report of the Camera and Cycling Club for the past session states that in order to extend its usefulness it has been affiliated with the Royal Photographic Society. The total membership of the Association is now 1,392, an increase of forty-six during the year—the report of the Committee mentions that the membership has progressively increased during the past eleven years. The Day School has been attended by fourteen students, eight of whom completed one year's course and entered offices as articled pupils; while it is hoped that all, or nearly all, will join the second year's course. At the close of the session £4,285 had been collected towards the new premises, and though this amount may not justify the Committee in embarking on a building scheme at present it goes some way in that direction. The register has again been of service to many members, although the demand for assistants has been rather below the average. The number of students attending the studio and evening classes was 198; this is a slight falling-off compared with previous sessions, but the results attained were very satisfactory. As regards finance, the accounts show a balance on the right side of £142, so that the Association is in a thriving condition.

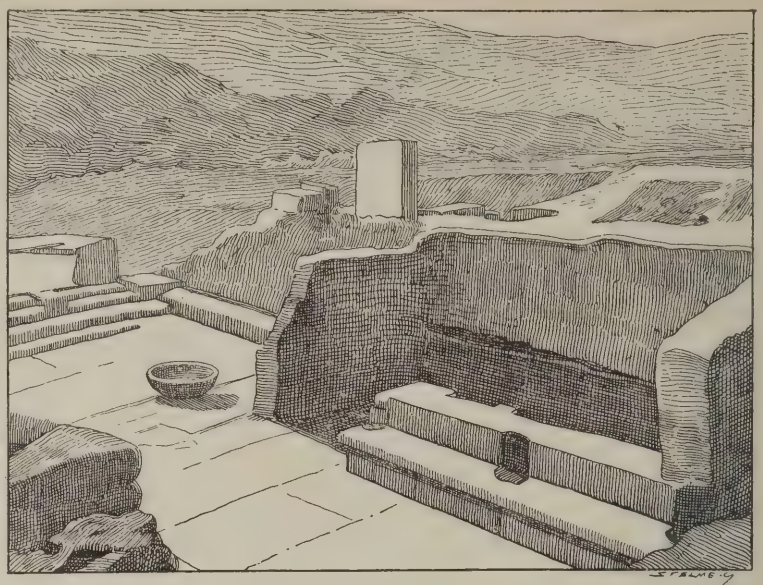
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AN EXCURSION TO THE HOUSE OF MINOS.

LEAVING the museum at Candia, the most populous town in Crete, let us set out for the field of the excavations at Knossos. Outside the ramparts of the town we find ourselves in a bright country sown with olive and fruit trees. Soon we see in the distance Mount Ida silhouetted against the sky like a gigantic cone set in the middle of the plain, and after about an hour's ride on ponies the excavations are reached. They at first surprise us, for there no acropolis, no eminence—nothing to suggest a place so famous. But there, in a great plot, lies the excavated Palace of Minos, the disposition of which is shown by the accompanying plan. It is seen that the eastern terrace, which formerly seemed to be part of an esplanade encircling the palace, forms in reality a great interior court bordered by two groups of buildings. Among the newer excavations made on the slope that leads to the river are seen some small store-rooms, an olive press, a small court enclosed by a colonnade and a large room for devotional exercises: and, lastly, what is most curious, a stair with four stages and about fifty steps leading to a higher level. It should be remembered that all these rooms are of medium size—the largest of them is only about 30ft. long by 15ft. wide: so that there is nothing to recall the enormous proportions of the Assyrian palaces or the Egyptian temples. Some corners of the excavations have the picturesque appearance of Pompeii, particularly the twenty small store-rooms arranged off a long gallery on the western side of the palace, where are about fifty tall jars, intended to be used for provisions, grain, wine and oil—such jars as the forty thieves might have hid in. In the floors of the rooms themselves small rectangular pits (in some cases sheathed with metal plates) have been dug for the reception of the more precious objects: but nothing has been found in them, for, after the fire which laid waste the palace, and of which traces are visible in many places, the inhabitants decamped with everything of value.

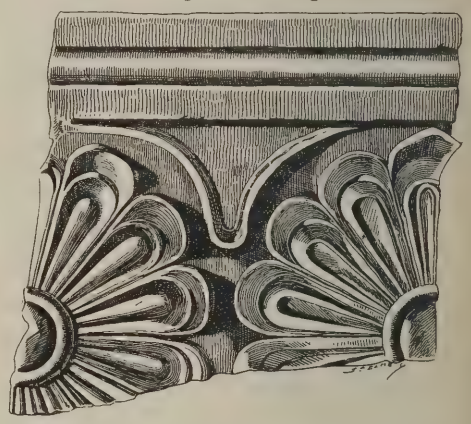


THE PILLAR OF AXES.



POOL IN THE THRONE ROOM.

On the south side a flight of steps leads to the propylea which, judging by the fragment of rose-work which has been discovered (and here illustrated), must have been very beautifully decorated. The moulding of the petals and the pleasant curves of the corollas are rendered on the stone with a delicacy which suggests the best works of classic Greece. Were this fragment found in the vicinity of the Erectheum it would not disgrace the collection of magnificent fragments strewn around the Athenian citadel. One understands how much the Ionic order owes to its archetypes which, in Crete and elsewhere, drew from the plant and the flower the classic elements of stone decoration.

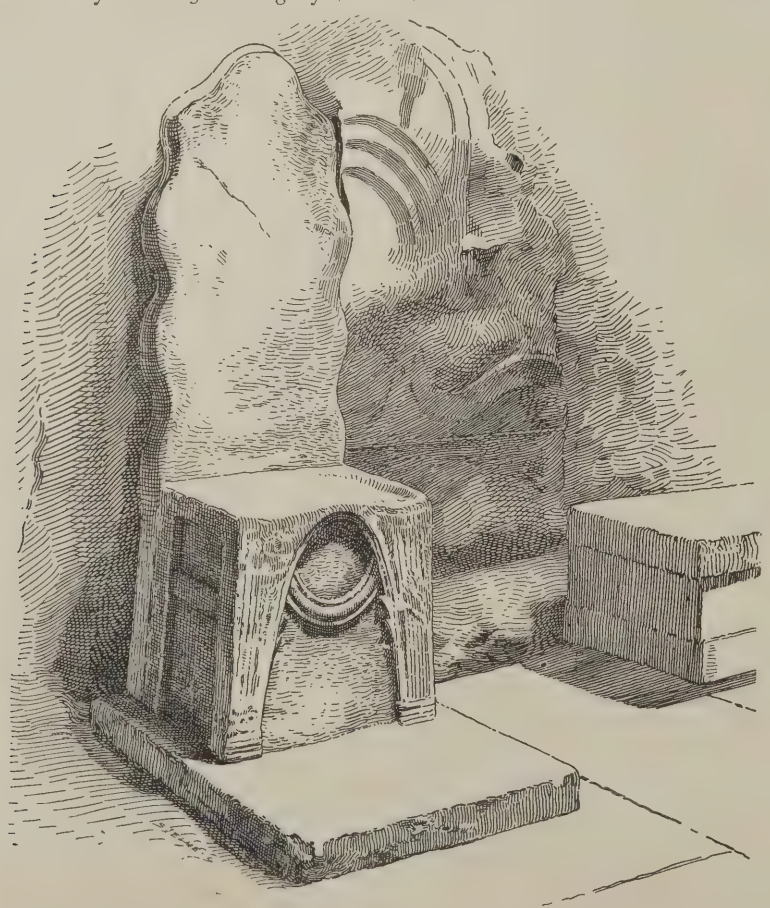


FRAGMENT OF SCULPTURED ORNAMENT.

The great central court gives access, on the west side, to three groups of buildings—to the left, a chapel; in front, the reception-room; and to the right, the women's apartments: in each of which have been found monuments or personal objects adapted to the uses of the building.

The sanctuary is recognizable by two pillars formed of large square blocks arising to about 6ft., and on each stone is deeply cut the sign of the Double Axe, that symbol of the warlike cult of the Cretans which has furnished an ingenious explanation of the word "Labyrinth"—"the House of the Double Axe."

The last excavation has brought to light on the east side a second sanctuary, larger than the other and having a room enclosed by a columned portico, besides a place provided with a platform attached at the bottom to the wall and covered with incised signs of the sacred bipenne. It is probable that on top of the pillars themselves were placed instruments of war—axes and clubs—as one sees figured on some Oriental cylinders.



THE THRONE OF MINOS IN THE PALACE OF KNOSSOS IN CRETE.

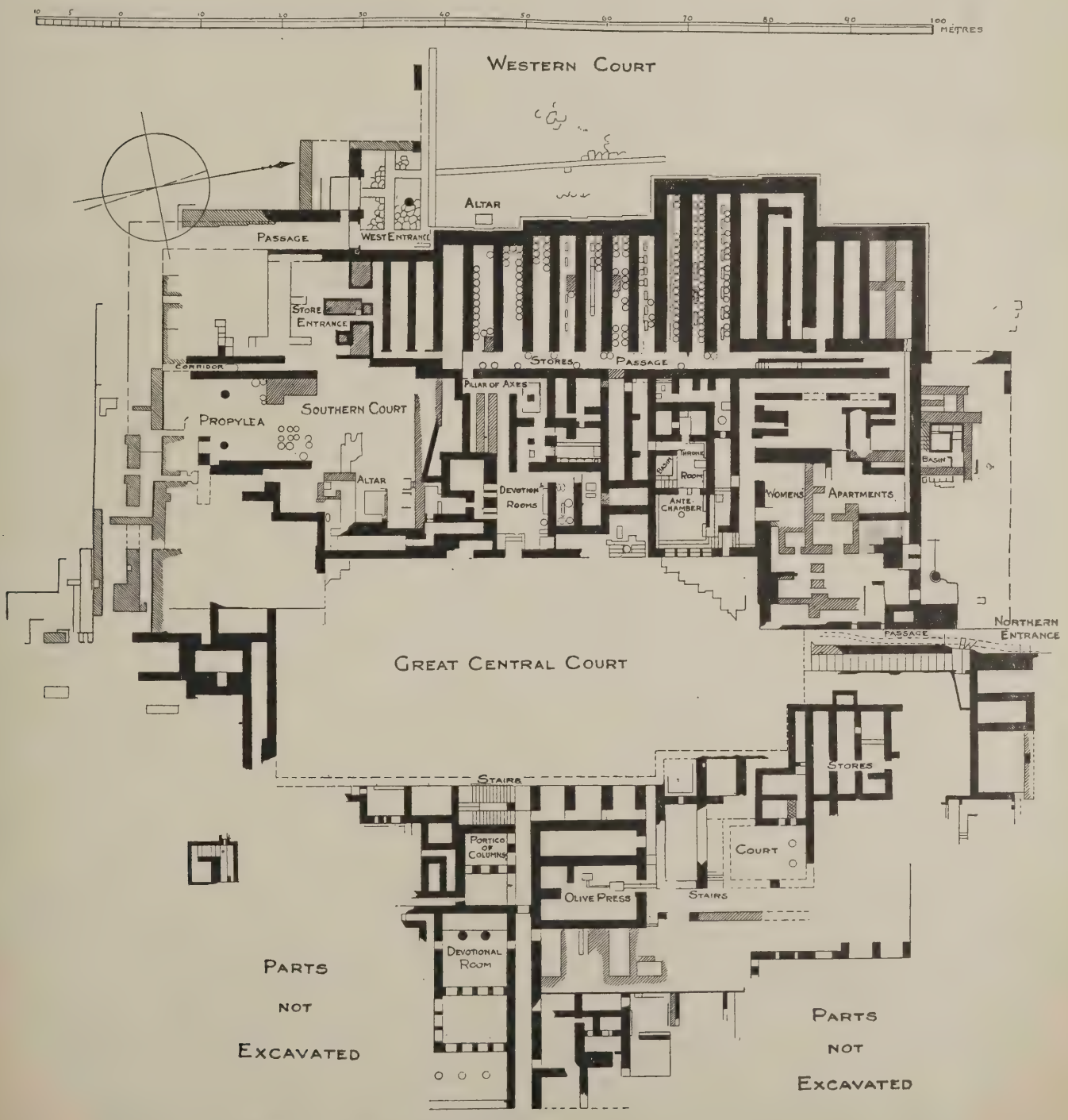
The adjoining part of the palace has an air of luxury and comfort. After crossing a small vestibule one enters the reception-room, called the "Throne Room" on account of the large stone seat which forms its chief embellishment. This seat, as will be seen by the accompanying illustration, is raised on a flat flag-stone and has the appearance of a throne; and the originality of its forms proves better than anything else how much Cretan art preserved its individuality in the face of Egyptian and Chaldean models. This throne with its curved outline and pointed ornament below the seat—this chair of wood translated into stone—is more like a Gothic prie-dieu than a pre-Hellenic piece of furniture.

The benches on either side and in front of the throne are very simple: they are formed of square blocks of well-polished stone without moulding of any sort, but their construction is remarkably careful. Homer's verses come to mind where the seniors of the people are represented "seated on polished stones and holding in their hands the sceptres of the sonorous voiced heralds." To reconstruct a similar scene in the hall of Minos is no effort, and it is a dramatic evocation of that king of old of whom legend has made a kind of cruel magician, whereas, in reality, he was the chief legislator of barbarian Europe.

One other curious detail completes the appearance of the room. In front of the throne is a deep hollow to which one descends by steps cut in the stone. The bench at the brim of this hollow has three wide notches in which the beams fitted for supporting the roof-covering of the pit; and as there is no trace of any cutting for water it is certain that the roof received the rain and let it fall into the pool: so that, in a country burnt with heat, the architect had the ingenuity to utilise these reservoirs for cooling the rooms, and we thus have here what afterwards became the atrium of the Romans and the most ancient example of the Latin *impluvium*. The disposition of the bathrooms in other parts of the palace is analogous, and above one of them, by a happy conception, is a decorated frieze representing fishes swimming.

The decorative painter naturally played an important part in this throne room, and here were the landscape paintings and the two crouching griffins to be seen in the museum at Candia. The position of the harem is also known by the paintings on the walls of the northern rooms: in fact, each part of the building was decorated appropriately to its uses.

Of the numerous objects discovered in this wonderful palace there is now no space to speak, but a brief reference should be made to the clay tablets—numbering more than two thousand—on which an unknown language is cut. Should these strange characters



PLAN OF THE PALACE OF KNOSSOS CRETE, EXCAVATED UNDER THE DIRECTION OF MR. ARTHUR EVANS.

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ever be deciphered, then we shall know of what race was this mysterious people.

But it is time to journey back to Candia, whence we go with a vivid impression of this resurrection of the Cretan world—made possible by the work of Mr. Arthur Evans and his comrades on the site of Knossos.

[The foregoing is translated and adapted from an article in the current issue of "La Revue de l'Art Ancien et Moderne."]

New Patents.

These patents are open to opposition until October 20th.

1901.—Water Carts.—18,140. R. WADSWORTH, Thomas Street, Halifax. This invention relates to those water carts which have rotating discs for distributing the water over the road, and its special feature is an arrangement of small valves, vertical coupling-rods and horizontal slides for regulating the quantity of water to a nicety. The valves are in the bottom of the tank at the back end, and to each is attached a coupling-rod that projects on top of the tank and is there operated by a sliding device. By these means the width of the spread can be instantly varied from 8ft. up to 40ft.

Earthenware Drain Pipes.—18,632. R. H. SMITH, "The Woodbines," James Street, Nuneaton. The socket end of the pipe is moulded in the die with grooves for cement keys. These grooves enable the air to escape when trapped in the clay between the small and large diameter, and also lock the joint.

Joiners' Ploughs.—19,915. G. J. BODY, 6, York Road, Aldershot. An attachment is clamped to the plough so that it may be fitted with a fillistering iron and be used for sashes, doors, &c., thus dispensing with the need for a fillister.

Band Saws.—20,223. A. E. MUIRHEAD, Cast Forge, Glasgow. The saw ribbons are mounted on pulleys and the slack is taken up when necessary by a third pulley, while suitable guide rollers are employed to give the ribbons a twist so as to bring the cutting edge to the front. Thus, one, two or more saws may be run on one pair of spindles.

The following specifications were published on Thursday last, and are open to opposition until October 27th next. A summary of the more important of them will be given next week. The name in italics is that of the communicator of the invention.

1901.—10,320, WICKSTEED, tool holder for planing, shaping and similar machines. 16,781, GREGG, baths. 18,207, FLETCHER, FLETCHER & Co., LTD., firebrick back for iron fret-fires. 18,825, DOULTON & MANGER, water-softening apparatus. 18,892, SYKES, continuous flow pump. 20,923, SOC. GILARDONI FILS A. BRAULT ET CIE., tile presses. 22,269, WINDER & PARKER, gulleys. 26,437, SELLARS, building blocks, tiles and artificial stone.

1902.—902, YOUNG, locks. 3,862, HAGAN, HAGAN, WHITCOMB, HAYNES, WHITNEY, CRANE, FELLOWS & CRANE, measuring instruments for surveying purposes. 5,358, HALL, lift or draw-bridges. 8,891, SUMMERTON, apparatus for operating Venetian blinds. 9,332, LAKE *(Warren)*, asphalt, cements, &c. 10,404, GUT, valve. 10,494, FULLER & UNITED ASBESTOS CO., LTD., vices. 10,510, SANDERSON & HUMPHREY, rendering washable paper printed with water-colours. 11,497, REYNOLDS, brick presses. 11,593, WALBINGER, impregnation of pasteboard and paper with tar, asphalt, &c. 12,032, WRIGHT, window screens. 12,392, HORN & RÖNITZ, machines for working, dressing or grinding stone. 13,772, DONOHUE & MORAN, preventing escape of smoke from chimneys. 14,763, HOBBIES, LTD., & JEWSON, hand-planes. 15,165, YOUNG, telescopic levelling staves. 15,502, DELAIRE & DESTEINBACHBERICK, machine for cold-twisting bars of railings, balustrades, &c.

Law Cases.

Brickmaking Refuse.—A case of considerable interest to the Kent brickmaking trade was heard recently at the Sittingbourne Petty Sessions. Messrs. Smeed, Dean & Co., Ltd., of Sittingbourne, who are at the head of the Kent brickmaking industry, were summoned by the Sittingbourne Urban District Council under the Public Health Act of 1875 by reason of a nuisance arising from a large accumulation of London refuse upon their brickfield. On July 11th this heap of refuse, which was 40yds. long, 30yds. wide and 2yds. high, and is about 1,200yds. or 1,300yds. from the Town Hall, became ignited, and the fumes beat down into the town, causing much discomfort to the inhabitants. The evidence showed that correspondence had passed between the Council and the firm upon the subject, but no attempt had been made to put out the fire. Proceedings then followed. It was contended that the refuse was the rough stuff which had been sifted after the ashes used in the burning of bricks had been taken from it, and that for purposes of brickmaking it was useless. It was suggested that the defendants might have put up a destructor, as had already been done by one local firm with success, or they might have cut a trench through the heap and separated the burning portion, extinguishing the same with water or smothering it with earth. To all of these suggestions it was stated that those methods had been tried on previous occasions, and that the remedy was worse than the disease. The principal witness for the defence was Mr. George Andrews, the manager, who said that his firm employed 1,400 hands and paid from £70,000 to £80,000 every year in wages. For the past fifty years the firm had burnt "rough stuff" without any prejudicial effect to health. What the public suffered from was, he maintained, the smell of the open sewer discharging crude sewage into the creek, of which complaints had been made by his firm to the council for years. No attempt had been made by the defendants to put out the fire, as it was impossible to do so. The court held that the case had been proved, and the defendant were fined 20s., were ordered to prevent a recurrence of the nuisance, and were mulcted in costs to the extent of ten guineas. Notice of appeal to the quarter sessions was given.

Views and Reviews.

Sewage Analysis.

It is, of course, necessary at every sewage-disposal works to both test and analyse the crude sewage and the effluent, in order to ascertain what amounts of chemicals, &c., have to be added to effect purification, and whether the effluent is sufficiently pure to be discharged. It is of the utmost importance, therefore, that the chemist or engineer should have a competent manual, and this book by the superintendent and chemist of the Manchester Corporation Sewage Works most adequately supplies the need. The book is clearly written and systematically arranged. The author lays particular stress on the fact that in the ordinary chemical treatment of sewage merely the grosser solids, &c., are precipitated, and the substances actually in solution pass away in the effluent, and unless the chemicals have been added in such quantities as to sterilize the latter these impurities will undergo putrefaction, provided the necessary conditions arise. This is what requires most careful watching, for we have heard of instances where incompetent persons having been left in charge of the works the effluent has been discharged unsterilized, with almost as bad an effect on the purity of the stream as the crude sewage. The biological process is undoubtedly the soundest in principle, but the question of its cheapness is at present debatable. The book deals with the determination of the chief constituents in sewage, with most useful tables at the end for quick calculation. It is surprising that engineers do not in this newly-established industry use the metric system, for it would save endless trouble, and the system, being employed by all scientists, would be uniform. The use of standard chemical solutions in testing is another method of saving labour and securing uniformity. The book can be highly recommended, and should be purchased by all engaged in the management of sewage works.

"Sewage Works Analysis," by Gilbert J. Fowler, M.Sc. (Vict.), F.I.C London: P. S. King & Son, Orchard House, Westminster. Price 6s. nett.

CITY SUBWAYS.

New By-laws for Preventing the "Street-up" Nuisance.

THE City of London (Various Powers) Act empowered the City Corporation to frame by-laws to deal with the nuisance caused by the constant tearing-up of the streets, and at the present moment some proposed regulations are awaiting the confirmation of the Board of Trade.

Although the new by-laws give no guarantee against the cutting-up of the streets in the future, they provide sufficient power of regulation to prevent a repetition of the chronic chaos which disgraced the streets of the City two years ago. All companies using subways in the City are brought under some sort of discipline at the hands of the Corporation. Moreover, the governing body of the City is, for the first time, empowered to levy annual charges for the use of the Corporation's subways by any company or person having statutory powers to break up the streets.

In case of sudden emergencies particulars of the repairs needed must be sent in writing to the City engineer, and three days before any company can place a service pipe or wire into a subway notice must be sent in writing, accompanied by full particulars, to the Guildhall. No company will be permitted to commence the execution of any work which will involve the alteration or reconstruction of any part of a subway until the expiration of forty-eight hours after notice has been given to the owner of every pipe or wire in the subway.

To minimise the risk of explosions, special precautions are provided in the new by-laws.

To secure the safety of the public, it is provided that no grating or other means of access to a subway shall be opened or allowed to remain open without a temporary fence being provided and a watchman left to guard it. All companies owning pipes or wires in a subway must within six months of the confirmation of the by-laws deposit with the Corporation full particulars of the pipes and valves, and within a further period of six months, if so required by the City engineer, plans of the same.

With regard to the fees and charges, the Act requires that a charge of 5s. per day will be imposed for laying, altering or removing pipes or wires from a subway, and 1s. will be charged for opening or closing a subway at any time other than the periodical visit of the officers of the Corporation. Should a company fail to carry out the by-laws or supply incorrect information it will be liable to a fine of £5, and to a further penalty of 40s. for each day during which the offence is continued.

THE BRITISH ASSOCIATION.

THE British Association met last week at Belfast. In the course of his presidential address, Professor Dewar spoke of technical and other education, the pith of which is suggested by the following sentence: "In all educational matters it is the average man whom we have to consider and the average ability which we have to develop."

The Education of Engineers

formed the subject of Prof. John Perry's address to the engineering section. His remarks applied only to the boy who really wished to become an engineer. Of those who merely dropped casually into the profession, but had no real fondness for it, he did not speak. Much of this putting of boys into positions for which they were not naturally adapted was due to our want of a rational system of general education. If we possessed that, the real bent of boys would be discovered at an earlier age. At the same time, he thought (it might be prejudice) that no one would be the worse in the long run for receiving the early training which is suitable for an engineer. In describing what this should be, he wished it to be understood that he had in view the average, not the exceptional, boy. His (the speaker's) own experience had told him that the best way with every pupil, young or old, well or ill prepared, was to approach his intelligence through the knowledge he already possessed; that, of course, meant very considerable diversity of method and great flexibility of system. Circumstances had enabled him to follow such a system; in some environments it would have been impossible. But at Finsbury the professors were given a free hand, and there were no outside examiners. The result was a considerable divergence from the usual course of teaching. For instance, those of chemistry and physics would have been called by some critics rational chemistry and applied physics —the course of mechanics was really one in mechanical engineering—there were lectures, elementary and advanced, tutorial classes, where paper exercise work was done, experimental plane and solid geometry and graphical calculation, and most important of all was the laboratory, where every student worked, making quantitative experiments. Each was trained in the use of every machine in the place; to understand its parts and to know what was required of them.

The Proper Training.

Some persons, perhaps, would refuse to call this engineering laboratory work, and would scorn it as merely experimental mechanics. But, in his opinion, elementary principles were the main things needful, and were just those of which the highly-educated student often had no real apprehension. For himself, he disapproved of elaborate steam engines for laboratory exercise work; the great thing was to use a machine which all could readily learn to handle, and to teach them to appreciate successively the work which every part of it could do. One fault of that generally adopted was that subjects—such, for instance, as mathematics, physics and chemistry—were usually taught "in watertight compartments." Their inseparability was what students ought to understand: that the one was constantly merging into the other, and many principles in them were common. The separation, also, which was so often made between theory and practice, was indefensible; for the one could not have a real existence without the other; practice was the expression of the theory, and the principle of the practice. He held it also very important that the teacher should not be excluded from professional work.

Mathematical Professors.

Professor Perry, continuing his address, said:—When the pure mathematician is compelled to leave the logical sequence which he loves to teach mechanics he is apt scornfully to do what gives him least trouble—namely, to give as "mechanics" that disguised pure mathematics which forms 90 per cent. of the pretence of theory to be found in so many French and German books on machinery. But how is a poor mathematical professor who dislikes engineering, feeling, like Pegasus, harnessed to a common waggon—how is he to distinguish good from evil? He fails to see how worthless are some of the books on "theoretical mechanics" written by mathematical coaches to enable students to pass examinations. An engineer teaching mathematics would avoid all futilities; he would base his reasoning on that experimental knowledge already possessed by a student; he would know that the finished engineer cannot hope to remember anything except a few general principles, but that he ought to be able to apply these, clumsily or not, to the solution of any problem whatsoever. Of course he would encourage some of his pupils to take up Thomson and Tait, or Rayleigh's "Sound," or some other classical treatise, as an advanced study. Not only do I think that every teacher in an engineering college ought to have some acquaintance with engineering, but it seems to me equally important to allow a professor of engineering, who ought, above all things, to be a practical engineer, to keep in touch with his profession. A man who is not competing with other engineers in practical work very quickly becomes antiquated in his knowledge.

The Opinion of the Average Engineer.

The average engineer not merely looks askance at, he is really opposed to, the college training of engineers, and I think on the whole that he has much justification for his views. University degrees in engineering science are often conferred upon students who follow an academic course, in which they learn little except how to pass examinations. This kind of labelled scientific engineer is being manufactured now in bulk because there is a money value attached to a degree. He is not an engineer in any sense of the word, and does not care for engineering, but he sometimes gets employment in technical colleges. He is said to teach when he is really only impressing upon deluded pupils the importance of formulæ and that whatever is printed in books must be true. The real young engineer, caught in this eddy, will no doubt find his way out of it, for the healthy experience of the workshop will bring back his common-sense.

Scholastic Standardization.

In the scholastic industry there has been far too much standardization. Gymnasium and polytechnic systems are standardized in Germany, and there is a tendency to import them into England; but in my opinion we are very far indeed from knowing any system which deserves to be standardized, and the worst we can copy is what we find now in Germany and Switzerland. What we must strive for is the discovery of a British system suiting the British boy and man. We cannot go on much longer as we have done in the past without engineering education, and, furthermore, it must be such as to commend itself to employers. To have any good general system the employers must co-operate. Much of the training is workshop practice, and it cannot be too often said that this is not to be given in any college. In Germany recently the great unions of manufacturers made facilities for giving a year of real factory work to the polytechnic students, but it seems to me that these men are much too old for entrance to works, and, besides, a year is too short a time if the finished product is to call itself a real engineer. Possibly the British solution may be quite different from any of these. A boy may enter works at fourteen on leaving a primary school, or not later than sixteen on leaving a secondary school. It will be recognized as the duty of the owners of works to provide, either in one large works or near several works in a well-equipped school following the Finsbury principle, all that training in the principles underlying the trade or profession which is necessary for the engineer.

Prehistoric Building Construction.

On Friday a paper was read by Mr. William J. Fennell before the Anthropological Section on "Some Ulster Souterrains," in which he remarked that the north east corner of Ireland was peculiarly rich in evidences of prehistoric man. Though no houses of any kind were known to exist attributable to the Stone Age, there was another class of built structure—the souterrain—which might be claimed as the primeval architecture of the country, for these souterrains existed in great numbers, and fresh ones were constantly coming to light.

A souterrain might be defined as a subterranean place of refuge, and, in that sense only, a dwelling. The entrance was either naturally difficult of approach or cunningly hid, and the interior was generally long, low, narrow and winding, and beset with frequent barriers, locally known as "difficulties," through which only one person could pass at a time, and then only by creeping.

The souterrains were not burrows, but vaulted chambers connected by passages, well defended and built of dry masonry walls and roofs, and afterwards covered up by earth and eventually hidden by vegetation. The exterior covering was always very thin, so that in many cases they were close to the surface. The construction was invariably of rough unhewn stones from the neighbourhood, and the roof was invariably formed by the overlapping of one stone on another, a system followed into much more recent times. The barriers were formed of walls rising from the floor almost to the roof, then a space of 12in. or more to the next wall, which descended from the ceiling to within 15in. of the floor, and leading in some cases to a long low tunnel 16in. or 18in. high, with a similar barrier at the other end.

No two souterrains were alike in plan; some were straight, or almost so, with chambers branching off; some were extremely short; while others were considerably more than 100ft. long. The souterrain at Muckamore was a solitary example of a two-storey building, entered from the field level to the upper floor and from that to the lower one.

Mr. Fennell thought that it was impossible to assign a date to these rough rude structures, but the diminutive one at Connor, co. Antrim, had two Ogham stones inserted, so that at least some of them must have been erected much later by a race who used an alphabet. It showed a distinct advance in building construction in the use of a series of lintel stones—including the Ogham ones—to support the roof, but even in this case it seemed to have been simply a place of refuge.

Human Beehives.

Mr. George Clinch, F.G.S., read the next paper, which dealt with "Some Ancient Subterranean Chambers recently discovered at Waddon, near Croydon." He said that excavations for a sewer at Waddon House in June, 1902, revealed three subterranean chambers cut in a bed of Thanet sand, and partly occupied by sand which had fallen or been washed into them. In each chamber, however, a compact floor was found at about 15ft. below ground. The chambers were of beehive shape about 7ft. high and 12ft. or less in diameter. Each had its independent entrance opening on the south-south-east side, but no other means of access till the domed roofs were cut open by the sewer

trench. Below the sand which covered the floors of the chambers several cores and chips of green-coated flints were found, with small fragments of imperfectly-baked pottery and larger fragments of Romano-British pottery. Similar chambers had been noted in Britanny and elsewhere. The subterranean "beehive tombs" at Mycenæ also were identical in plan, though different in dimensions and material.

The Waddon discovery was therefore of some importance as evidence for the size, shape and plan of prehistoric dwellings; the vaulted roofs cut in hard sand reproducing in general form the interlaced boughs, benders and wickerwork of the ordinary surface hut, and the lateral passage the doorway of the neolithic dwelling. The same idea of interment within a house survived during the Bronze Age; but when cremation came into vogue a miniature copy of the Bronze Age house—the "hut urn"—was sufficient repository for the ashes. The tradition of the circular neolithic hut was carried on in the Celtic beehive dwellings of Cornwall, Wales, Scotland, Ireland and Gaul, and probably in the circular buildings of subsequent English architecture. The Bronze Age dwellings, on the other hand, which were reproduced in the "hut urns," might be regarded as the prototypes of the square or angular forms of ecclesiastical and domestic architecture.

Mr. David MacRitchie read the third paper on

Underground Dwellings in the British Isles.

It was hardly possible to conceive of human dwellings more archaic in character, and yet some of them, if not all, belonged to the times that are quite historic. Two specimens, one at Crichton in Mid-Lothian, and the other at Newstead in Roxburghshire, must have been built after the arrival of the Romans in Britain—and probably a long time after that date—for the reason that a number of dressed stones with Roman ornamentation had been used in their construction, presumably taken from Roman ruins. In a few instances the dwellings had a fireplace, but this was very exceptional. Like the similar dwellings of the Eskimos, these underground habitations were so well protected from the cold of even the keenest winter that a fire was not necessary, and oil lamps sufficed for heating, lighting and cooking. From their characteristics, therefore, these underground structures quite justified the name of "earth-house" which was given to them in the Norse sagas and also in living popular speech. In appearance they varied considerably, but most of them had their roofs about a foot or two below the surface of the ground, entrance being obtained from above by one or more downward-slanting passages. They were built of rough, undressed, unmortared stones, the walls gradually converging until they met in a "cyclopean" or "false" arch, completed by large flagstones laid across. In some cases their very small dimensions supported the traditional belief that they were built for a dwarfish race.

Mr. Arthur Evans's Latest Communications respecting Knossos.

Mr. Arthur Evans communicated an important report on his continued excavations of the prehistoric Palace of Knossos in Crete, the greater part of which, embracing an area of about five acres, has now been uncovered. A very interesting feature was the complete system of drainage, including latrines with flush pipes and a succession of stone shafts descending from the upper floors to a network of stone ducts beneath the pavement of the lower rooms, large enough for a man to make his way along them. Fresh fresco paintings were discovered, including one of a lady in a very modern jacket, dolphins and other fish, and naturalistic foliage and lilies. The exquisite ivory figures of youth showed "the art of Dædalos" in its highest perfection, displaying naturalistic details not found again in such work till the age of the Italian Renaissance. Another extremely interesting find was the remains of a large mosaic of porcelain plaques, many of them representing houses, so that a whole street of "the city of Minos" as it existed about 1500 B.C. could now be reproduced. Here, too, were strangely modern features—houses of three storeys, some semi-detached, and showing windows with four or six panes, oiled parchment having, perhaps, been used in place of glass. The whole seemed to have formed part of a large design showing scenes of peace and war analogous to those of Achilles' shield. The palace was found to climb down the eastern slope of the hill to a point about 90 mètres below the northern entrance, the lowermost terrace having been supported by a quadruple line of wall. On the slope underneath the later Mycenæan palace had been found extensive remains of the magazines of what seemed to have been an earlier royal dwelling going back into the third millennium B.C. The excavation of the south-eastern corner of the palace had still to be completed, and certain work of delimitation had to be carried out in other directions. Unfortunately, the total amount that the Cretan Exploration Fund (including the grant from the British Association) had been able to contribute towards the year's expenses had again fallen far short of what Mr. Evans had been called upon to expend.

Bricks and Mortar.

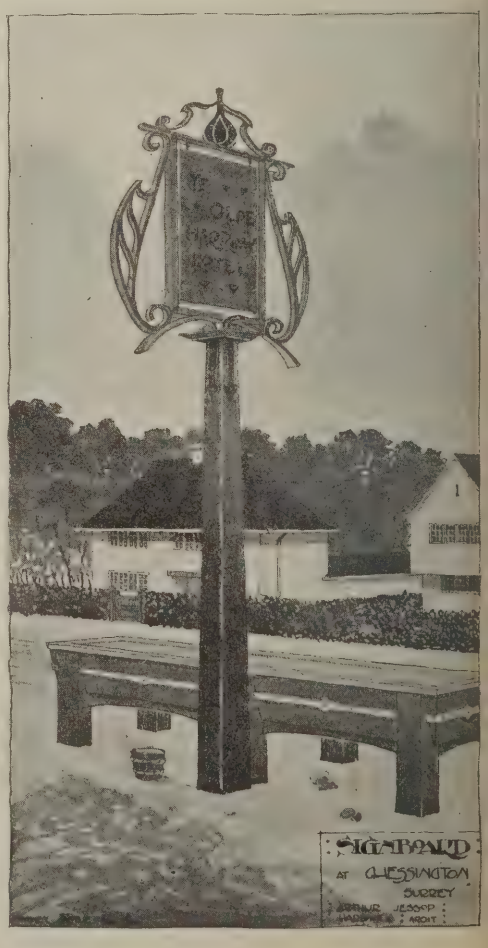
Aphorism for the Week.

It is the addition of the mental ἀρχή . . . which separates architecture from a wasp's nest, a rat hole, or a railway station.—RUSKIN.

Our Plates. MARLBOROUGH CHAMBERS is being erected for Mr. G. F. Harrington. The contractors are Messrs. Turtle & Appleton, of 141, St. John's Hill, London, S.W., and Mr. Reginald Morphew is the architect. The Jermyn Street and Bury Street frontages are faced with the best Portland Whitbed brown stone. The masons are Messrs. J. & A. Crew. The carving will be executed by Mr. Gilbert Seale, and Messrs. Homan & Rodgers are carrying out the fireproof floors. The suites of chambers are to be decorated with American yellow pine and the best Austrian oak. Bookcases and cupboards are to be built in the various recesses in the walls, and these rooms will be made as attractive as possible.—The Passmore Edwards Boys' Club and Fairbairn Hall was opened early in 1900. The club premises have a frontage towards Barking Road of 78ft. The plans on the opposite page show the accommodation provided, and the irregular shape of the site. The clubroom is lighted by two semicircular windows. The manager's office is separated from the room by a glazed screen, and is so situated that all persons passing in and out of the club are under the manager's direct supervision. The office also serves the purpose of a general enquiry office. A fireproof staircase leads from the back to a reading-room immediately overhead and a billiard-room on the floor above. This latter contains three full-sized tables and, in addition to the windows, is lighted from the top by a lantern running the full length of the room. A long seat upon a raised dais, it will be noticed, runs round the greater part of the room for the accommodation of spectators. Adjoining the billiard-room, and occupying the remainder of the top floor, is the caretaker's apartments. At the back of the main block on the ground floor is the large hall, known as the Fairbairn Hall. This will accommodate 280 persons. Most of the floors are covered with wood blocks, and the rooms are heated by hot water, several having open fireplaces in addition. Electric light is fitted throughout. The main front is of red-pressed bricks, with terra-cotta dressings and strings, as also the mullions and transoms of the windows. The cost of the buildings was about £7,900. The contractors were Messrs. James Smith & Sons, of Norwood, and the architect was Mr. H. C. Lander, A.R.I.B.A., of Effingham House, Arundel Street, Strand, W.C.

A Century of Desolation. "WE complain of vanishing Egypt, but it is not too much to say that if England were left uninhabited for a hundred years it would be practically impossible for historians to reconstruct our civilization. The railways would have rusted away. The bridges would have collapsed. The steamships would have sunk. The Crystal Palace would have come to resemble a deposit of fractured aërated-water bottles. The books would have, most of them, mouldered away. The adjectives of Marie Corelli would have flown to rejoin their long-forgotten originator. An occasional human bone, a large mound at the top of Ludgate Hill, some red, white and blue poppies near Downing Street, and a kind of acropolis in the middle of Birmingham, would alone remain to vary the monotony of endless greenery—probably shamrock—which would then cover England." There is, however, no saying whether the "Daily News" (from which the foregoing is taken) would still remain.

A Sign-Post. THE sign-post at Chessington, Surrey, illustrated on this page, was executed for a small wayside inn on the main Leatherhead Road. The drawing is self-explanatory. The design is by Mr. A. Jessop Hardwick, architect, of Eagle Chambers, Kingston-on-Thames, Surrey.



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Supplement to
THE BUILDERS' JOURNAL AND ARCHITECTURAL RECORD,
Wednesday, September 17th, 1902.



"INK-PHOTO." R. J. EVERETT & SONS, 56 LUDGATE HILL, E.C.

ALFRED H. HART, A.R.I.B.A., ARCHITECT.

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"INK-PHOTO." R. J. EVERETT & SONS, 56 LUDGATE HILL, E.C.

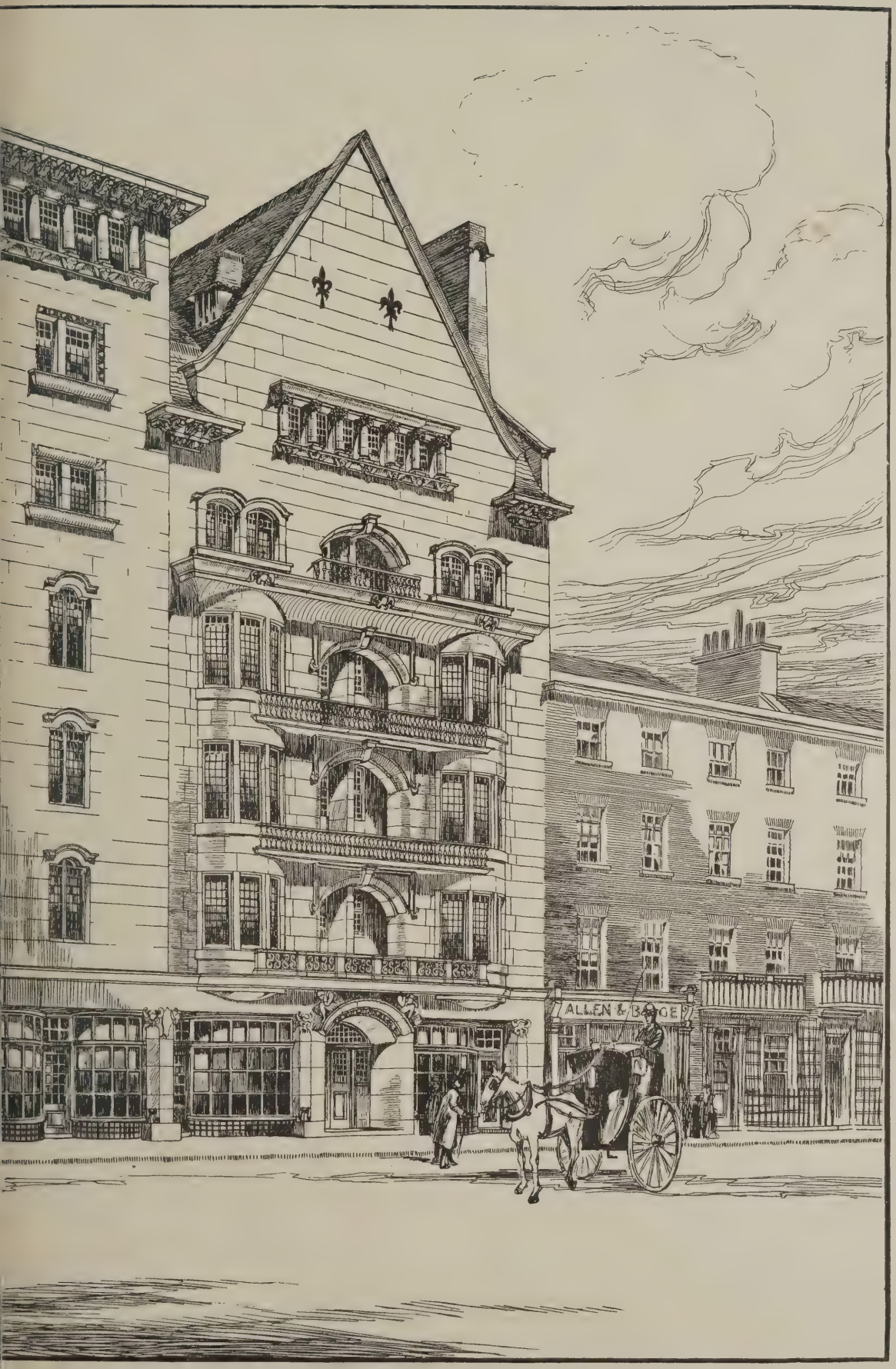
PASSMORE EDWARDS BOYS' CLUB, CANNING TOWN, E. HAROLD C. LANDER, A.R.I.B.A., ARCHITECT

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MARLBOROUGH CHAMBERS, JERMYN STREET



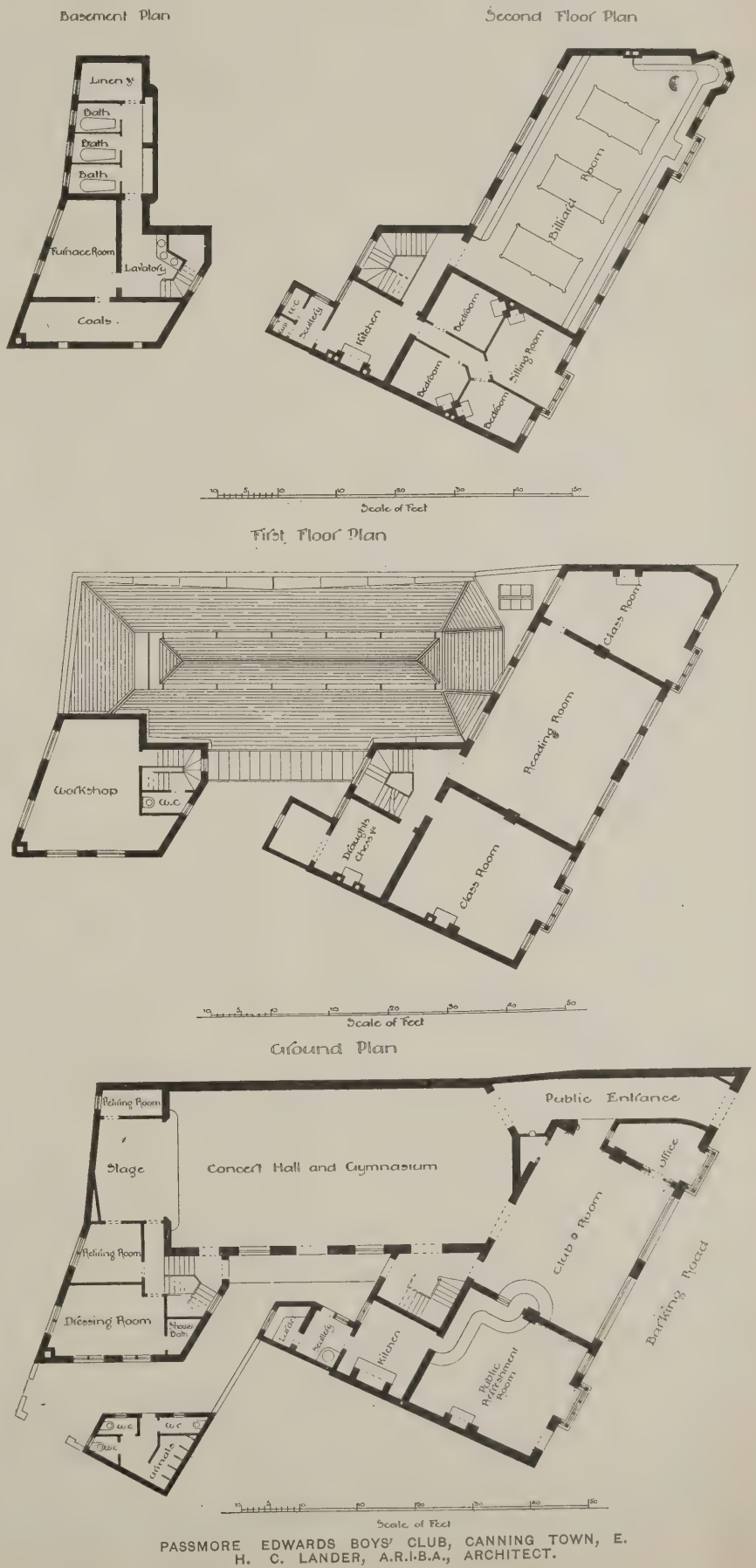
NDON, S.W. REGINALD MORPHEW, ARCHITECT.

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Newgate and the Sessions House. Instructions have now been issued by the City Lands Committee of the Corporation for pulling down the female wing at the Old Bailey, and it is hoped to shortly commence the demolition of the remainder of Newgate for the purpose of erecting the new Central Criminal Court. The female wing and the Sessions House have long been the property of the Corporation, and it is only that portion of the prison known as the male wing which is being acquired from the Government. Until the Brixton gaol is completed, the Government do not see their way to effect the transfer, but it is thought that very little further delay will take place. Immediately the City authorities get possession operations will be started on a large scale. There will probably be a bronze statue of Justice in the summit of the dome of the new Sessions House, and allegorical figures will ornament the main entrance. The walls will be of brick faced with Portland stone. It is the intention to make the courses of stone of the principal elevation of the same height as those of the existing walls, the object of this being to allow as much as possible of the old building to be used should the material be found to be sound. Since the acceptance of Mr. E. W. Mountford's design a few modifications have been introduced, and probably others will be made during construction. In connection with the cells, the requirements of the Home Office have been carefully followed. The present Sessions House will not be pulled down until some portion of the new building is finished.

A Literary Architect-Builder. A Mr. Charles F. Lumis, author and editor, has planned and built for himself on the outskirts of Los Angeles, California, a most strange dwelling. The walls are massive, 4ft. thick, built of boulders of every shape and colour. Unhewed girders of oak stretch between the walls and support a low flat roof, which is to be used as a promenade. The doors are hewed out of heavy plank, oddly grained, no two being alike, and placed without regard to symmetry; each door being hung on fantastic wrought hinges. The windows are of all shapes and sizes. A circular jagged tower rises above the roof to a sufficient height to give an unobstructed view of the landscape. On the upper floor of the house is the author's workroom, which is reached only by an outside stairway. It is one large room containing the library of rare and expensive books, documents, early works and prints, and a small ante-room at the stair head contains many rare relics of an early civilisation dating back to the Aztecs. In the living-room on the ground floor is a collection of art works, curios, relics, &c. All is odd; but the fact that the owner has been his own architect, stonemason, carpenter, painter—in fact, has done the "whole thing"—makes the effort interesting.

Sonning Bridges: An Interesting Letter. In defending his position with regard to the bridges across the Thames at Sonning and their proposed rebuilding (see p. 51 of our issue for September 3rd) Mr. Holman Hunt sends a letter from Mr. W. H. Thorpe, who says:—"My experience in the design and construction of bridges during many years, together with a considerable practice in examination and maintenance of old work, enables me to say with confidence that the order of durability is—masonry (including brick), cast-iron, wrought-iron, steel, timber, and the order of at least cost is generally for moderate spans—timber; masonry (plain), cast-iron, steel and wrought-iron (nearly equal). I have again and again known cases where local authorities, bitten with the mania for being 'up-to-date,' favour the construction of what is commonly in such cases called a 'nice light lattice girder steel bridge,' notwithstanding that a bridge in stone or brickwork would cost less, last longer and look better. I do not know the conditions at Sonning, but, broadly, I may say that for moderate spans steel should never be used if it is practicable to build in masonry or brickwork, on grounds of economy, present and future. With respect to the æsthetic aspect of the matter, I will admit that while I prefer the masonry or brick arch, or alternately the metallic arch—girder construction has not the same alarms for me as for some—there are beauties in good metallic construction which are entirely unappreciated by the average observer unacquainted with the art. . . ."



PASSMORE EDWARDS BOYS' CLUB, CANNING TOWN, E.
H. C. LANDER, A.R.I.B.A., ARCHITECT.

Keystones.

The Society of Architects.—Mr. Silvanus Trevail, F.R.I.B.A., J.P., president of the Society of Architects, has been invited to continue in office for the ensuing session, and has consented to be nominated for the second time.

Swanscombe Church.—The "Gravesend Standard" states that the architect, Mr Jabez Bignell, will be much assisted in restoring the screen by the measured drawing by Mr. Frank J. Waller, published on p 34 of our issue for August 27th last.

The Affairs of a Bexhill Architect.—The public examination was recently held of Mr. A. C. D. Hicks, architect, of Bexhill. His gross liabilities were £4,832, of which £532 was expected to rank. His assets were estimated at £302, leaving a deficiency of £255. The debtor attributed his insolvency to slump in value of property at Bexhill, and consequent bad debts, and competition. He started in business about twelve years ago.

St. Mark's Campanile. — The National Arts Club of New York has issued an appeal for American subscriptions in aid of the rebuilding of the Campanile in Venice, basing its appeal on the fact that for many generations Americans have received pleasure and benefit from the art and architecture of Venice, and that both public and private collections of works of art in Italy have long been freely opened to American students.

The Northampton Institute.—We have received a copy of the announcements of this excellent Institute for the session 1902-03. The evening courses and classes in all technological subjects will commence on Monday, September 22nd, and the day courses in engineering on Monday, September 29th. Among the special courses which have been arranged are the following:—Seven lectures for woodworkers, commencing November 5th (fee 1s. 6d.); six lectures on sanitation, commencing January 7th next (fee 1s. 6d.); three lectures on ironwork in buildings, commencing February 18th next (fee 1s.); three lectures on plasterers' work, commencing March 11th next (fee 1s.); five lectures on modern building practice, commencing April 8th next (fee 1s.). There are, in addition, the usual classes on architectural and building practice. Further particulars may be obtained from Mr. R. Mullineux Walmsley, D.Sc., F.R.S.E., principal of the Institute, St. John Street Road, Clerkenwell, E.C.

A New Baptist Church and Schools at East Finchley is being erected. The scheme consists of a church with nave and aisles and transepts and choir, with three vestries, the seating all radiating on a circular plan from the pulpit. Accommodation is given for 764 adults on ground floor (including seventy-two in end gallery), or a mixed congregation of about 870 persons. A tower is placed at the corner of church, which will stand at the corner of the Great North Road and Creighton Avenue. The schools, which have been opened, are two storeys high, and consist of a large hall with eight classrooms at the sides, partitioned off from each other by sliding panelled partitions so arranged that the whole school can be thrown open into one large hall for use as a chapel until the new chapel is erected, and one at the end opposite the platform. The galleries on three sides are to be used for classes. There are two large seniors' classrooms in the rear, and a large infants' room, &c., and kitchen. The buildings are faced in front with split flints with stone dressings. The architects are Messrs. George Baines, F.R.I.B.A., and R. Palmer Baines, of 5, Clement's Inn, Strand, London, W.C. The contract amount for the schools was £3,634.

A Statue of Queen Victoria is to be erected close to the Portsmouth Town Hall.

Haddington Church is to be restored, an anonymous donor having offered £7,500. A portion of the church is at present in ruins.

A Home for the Aged Poor and Infirm has been opened at High Barnes, Sunderland, by the Little Sisters of the Poor. The total length of the new building is 220ft.; its cost £14,000; and its accommodation from 150 to 200 persons.

The Catholic Church of St. Nicholas at Bristol, in Pennywell Road, has been re-opened, after undergoing re-decoration by Messrs. Webley & Sons, of Park Row, Bristol, at a cost of £280.

Art in Edinburgh.—The Secretary for Scotland has appointed Mr. Akers-Douglas, M.P., Sir John Stirling Maxwell, M.P., Sir Walter Armstrong, Director of the National Gallery, Dublin, Sir Kenneth Mackenzie, King's and Lord Treasurer's Remembrancer in Scotland, and Mr. T. R. Buchanan to be a committee to inquire into the duties of the Board of Manufactures, with special reference to the administration of the grants made by Parliament for the purposes of art in Edinburgh.

The Langho Asylum Competition.—The Chorlton and Manchester Joint Asylum Committee (Chorlton and Manchester Unions) have issued the decision with regard to the competitive designs for the new Asylum Colony for Imbeciles and Epileptics to be erected at Langho, near Blackburn. On the advice and adjudication of Mr. P. Gordon Smith, F.R.I.B.A., of Palace Chambers, Bridge Street, London, S.W., the assessor, they have awarded the three premiums as follows, namely:—First premium, £200, to design No. 38, authors, Messrs. Giles, Gough & Trollope, architects, 28, Craven Street, Charing Cross, London, W.C.; second premium, £150, to design No. 34, authors, Mr. Edward Page Howard, 39, Cursitor Street, London, W.C., and Mr. Ernest Richard Dolby, 8, Princess Street, Westminster, joint architects; third premium, £100, to design No. 16, authors, Mr. Joseph Smith (of Messrs. Cheers & Smith), Mr. Frederick John Parkinson and Mr. Walter Stirrup, 9, Richmond Terrace, Blackburn, joint architects. It is their intention to publicly exhibit the designs during the early part of the month of October. Where competitors have requested that their designs should not be so exhibited, they will not be included in the exhibition.

A New Board School at Vickerstown, Barrow-in-Furness, has been erected upon Walney Island for the children of the new town, being built by Messrs. Vickers, Son & Maxim. The total accommodation is for 648 children, and the buildings are of one storey, containing a central hall 65ft. 6in. by 33ft., and ten classrooms, with cloak-room and two teachers' rooms on the ground floor and large heating-chamber and store-room in the basement. The walls are built of bricks faced externally with Askam bricks to a height of 4ft., and above that with rough-cast in cement coloured a cream colour, and with St. Bees stone dressings. The roofs are covered with grey Walna Scar slates and red ridge tiles. Internally a dado 4ft. high of coloured glazed bricks runs round all the rooms and corridors, and the walls above this are plastered and coloured. The buildings are lighted throughout by electricity. The total cost of the work, including playgrounds, play-sheds and boundary walls, is £8,075. The contractors for the work are:—Excavator, bricklayer and joiner, Messrs. Clark & Robinson; mason, Messrs. G. Varley & Son; slater and plasterer, Mr. James Walker; plumber, painter and glazier, Mr. James Gell; ironfounder, Mr. W. Barrett. Mr. Henry T. Fowler, of Barrow-in-Furness, is the architect.

Builders' Notes.

Mr. James Dargie, builder, of Forfar, died last week. He built the Infirmary, the Reid Hall, and the Union Bank at Forfar, while in Arbroath he built the Poorhouse, and successfully carried out a large drainage system in connection with that town. He retired from business about twenty years ago.

The South Wales Building Trades Employers' Federation held its quarterly meeting last week at Pontypridd. The president (Councillor W. M. Blackburn, of Newport) presided. The new contract form, as drafted by the National Federation, was adopted. The new clause recommended by the National Federation for insertion in all new rules was discussed, and it was resolved that the Association be recommended to adopt it.

Mr. Charles Choat, builder, of Mildmay Road, Chelmsford, died recently at the age of sixty-eight years. Deceased started work with his father, Mr. Richard Choat, in Mildmay Road, Chelmsford, when he was twenty-one years of age, and of late years he had been assisted by his eldest son, Mr. C. W. Choat, who is now in charge of the business, which was originally started by Mr. Richard Choat in 1840.

The Peterhead Master Builders' Association held its annual meeting recently, Mr. A. Milne, engineer, president, in the chair. The accounts for the past year were submitted and passed, and the following office-bearers were elected for next year:—President, J. B. Dickie, builder; vice-president, W. Hadden, builder; secretary and treasurer, A. Clark Martin, solicitor; committee: Messrs. John Davidson, plumber; W. G. Calder, painter; James Taylor, jun., builder; W. Mackintosh, slater; John Stuart, plasterer; and A. L. Williamson, blacksmith.

Manchester Painters.—A deputation representing a large body of the organised painters in Manchester—including some 1,100 ratepayers—waited on the Watch Committee of the City Council last week and complained of certain painting work being done at the police and fire stations by policemen and firemen. They asked that such work should be given to properly qualified workmen, and suggested that the painters attached to the Town Hall staff should be employed. The request of the deputation was acceded to so far as the police stations were concerned, and the fire brigade sub-committee was asked to report with regard to the fire stations.

A Scaffold Accident occurred last week at the South Lancashire Tramways Co.'s electrical generating station at Howe Bridge, Atherton, resulting in the death of three men and serious injuries to three others. The works are now nearing completion. For the last few weeks Messrs. Klein & Co., a Manchester engineering firm, have been engaged in constructing a cooling tower, which, when completed, will be one of the largest in the country. A huge scaffold has been raised 20ft. above the concrete basement, and a platform was formed on top preparatory to carrying the staging another 40ft. higher. A derrick, with the usual blocks and chains, was used to raise the baulks of timber to the basement, and one afternoon last week seven workmen were employed in moving this from its position in the centre of the staging to a point a few yards further on. Lever and guide ropes attached to the top of the derrick were used for the purpose, and the work was apparently proceeding smoothly when suddenly a sound of crashing timber was heard, and without any further warning the centre of the huge wooden structure collapsed, carrying six of the seven workmen on the platform along with it in its fall.

Enquiries Answered.

The services of a large staff of experts are at the disposal of readers who require information on architectural, constructional or legal matters. Questions should in all cases be addressed to the Editor. The querist's name and address must always be given, not necessarily for publication.

The "Builders' Journal" in France.

LIVERPOOL.—A. M. writes: "Has the BUILDERS' JOURNAL any circulation in France? I wish to get into correspondence with a French architectural student, to exchange ideas and practise the language."

The BUILDERS' JOURNAL has a small circulation in France, and can be obtained at Neale's Library in Paris. For your purpose it would, however, be probably better to address an enquiry to such a paper as "La Construction Moderne," 13, Rue Bonaparte, Paris.

Sketching Tour in Derbyshire.

LEICESTER.—STUDENT writes: "Kindly give some information about an architectural sketching tour taking the village of Hayfield in Derbyshire as a centre."

This part of Derbyshire is by no means rich in architectural work, and there is comparatively little that is worthy of study. In Hayfield itself is the church of St. Matthew, which was rebuilt in 1818. The present church stands on the old walls, and in the crypt, which was built in 1386, can be seen the lower part of the original nave piers. There is a splendid walk to Glossop from here. Glossop Hall, a fine building, is in the French château style of the eighteenth century. At New Mills, three miles from Hayfield, the Roman Catholic church of the Annunciation is worth visiting. At Chapel-en-le-Frith, which is about nine miles distant by rail, is the chapel of St. Thomas-à-Beckett, founded in 1225 and rebuilt in the eighteenth century. Mellor, 1¼ miles east of Marple Station, has the church of St. Thomas, which is mainly modern restoration, but its tower was built in the fifteenth century, and it contains a unique fourteenth-century wooden pulpit carved out of the solid. It is the oldest wooden pulpit in England. There is also an interesting Norman font, sculptured with rude incised figures, in this church. At Peak Forest (about twelve miles by rail) is a church dedicated to "St. Charles Kinge and Martyr," and built in 1660. Castleton is worth a visit, containing the church of St. Edmund, which, however, has undergone so many restorations and repairs that little pre-restoration work remains, but a fine Norman arch separates nave from chancel, and the tower is of late fifteenth-century work. The ruins of the old castle of the Peverels lie to the south of the town. The great architectural monuments of Derbyshire, such as Haddon Hall, Chatsworth House and Tideswell Church, apparently lie outside the district referred to in the question. G. A. T. M.

Construction of Chimney Stack.

LONDON.—VOLTA writes: "It is proposed to line the upper 20ft. of a large electricity station stack with firebrick bonded in. Is this in accord with modern practice? The electric engineer says it is useless—not more than 1 in 20 stacks have been so built during the last thirty years." He also adds that in Lancashire many mill chimneys for large boiler power are only half-a-brick thick at the top."

I have never heard of a case where the top of a large chimney shaft was lined with firebrick; it is certainly most unusual. Nowadays firebrick lining is not bonded in, but built as a separate wall with an air-space between it and the outer main walls. It is not usually carried up more than 25ft. in small stacks or 50ft. in large stacks. The top 20ft. of a stack is usually 9in. thick, increasing by 4½in. every 20ft. downwards. When the stack is more than 250ft. high the top length should be 14in. thick. When the inside diameter does not exceed 3ft. and the height is not more than 75ft., a thickness of 4½in. for the top length might be sufficient, but nothing less than 9in. is usual in London. HENRY ADAMS.

An Architect's Will: Disposal of Practice.

LONDON.—H. E. W. writes: "In the case of an architect making his will, what is the usual way in which he would direct his executors to dispose of his practice for the benefit of his wife and family, supposing that he leaves no professional partner, son, nor anyone in particular to carry it on? What would be fair terms to offer to anyone disposed to take over the practice, and what proportion of profits might be reasonably expected from him in favour of the widow and children, both in regard to the completion of work actually in hand at the time of the architect's death and also to any that might come into the office within the next two or three years? In the case of a practice being sold outright as it stands, is the goodwill reckoned as being two or three years' purchase of the average income of the past three years?"

The wording of a will is such a personal matter that it is exceedingly difficult to give advice. Probably it would be best to hamper the executor as little as possible, merely directing that the goodwill of the business, office furniture, instruments, drawings, account books and records of all sorts be disposed of, and the proceeds paid over to the selected beneficiary, the will being drawn up by a solicitor. A letter addressed to the executor might be deposited with the will making a few suggestions to him as to how to proceed in selling the business, and this would be an especially wise course to adopt if the executor know little of architectural practice, but it should be carefully worded so as not to tie his hands should he see a better way. It might, for example, be suggested to him that the practice be immediately advertised as for sale in this and other professional journals, that all negotiations should be carried on through solicitors, and that an accountant be called in to draw up a proper balance-sheet. A few hints as to the way in which the books have been kept might also be useful, and an intimation as to the price which might reasonably be asked. Generally speaking, the sooner a business is disposed of after a death the greater its value, and it is better to sell for a lump sum than to make a profit-sharing arrangement. As no good introduction can be given, it is unlikely that much more than one year's purchase could be realized, unless appointments bringing in definite incomes could be handed over, and these should realize three years' purchase. The executor should send in bills to the clients closing all accounts to the date of death or to the date of handing the business over to a successor—the executor in this case conducting it in the interim; for it is impossible to bind a client to go to your successor for completion of works in progress however probable it may be that he will do so. At the same time, letters should be sent with the bills explaining the circumstances under which they are rendered and introducing the successor. Letters of introduction ought similarly to be sent to all other clients whose addresses can be found. If the books have been properly kept, with indices of drawings and address-books of clients and possible clients, not only is the executor's task rendered much easier, but a much higher price can probably be obtained than otherwise. Most important of these details is proper book-keeping, with balance-sheets audited by an accountant at regular intervals, extending regularly over many years. G. A. T. M.

Architects as Valuers: Licences.

BATLEY.—INQUIS writes: "If an architect or a builder is asked to make a valuation of damage done by fire to any building for insurance claims or for the purpose of borrowing money on a mortage, does he require a licence, and if so, what nature of licence should he take out and what is its cost?"

An appraiser's licence (cost £2 per annum) must be taken out by any person acting as a valuer. If "Inquis" acts without this licence he is liable to a penalty of £50, but in any case he would not be able to recover his fees by an action, as the fact of his not having a licence to act would be considered a valid defence in law. W. E. D.

The Trade Custom as to Squares of Boarding.

BIRMINGHAM.—F. N. S. writes: "How many super. ft. should thirty squares of matchboarding cover? My timber merchant says they always measure the tongues, that is to say, if I ordered thirty squares of ¾in. by 6in. matchboards, I should only get 200 running feet of boards that cover only ¾in. by 5½in., which takes 218 1/11ft. to the square. Is he right?"

Your timber merchant is quite correct. It is the trade custom to measure and sell prepared boardings at per square of original dimensions, without any allowance for loss in conversion. To the timber-merchant a square of 6in. by ¾in. deal rough boarding, a square of 6in. by ¾in. deal boarding wrought both sides and edges shot, and a square of 6in. by ¾in. deal matchboarding represents the same number of running feet in each instance, notwithstanding the fact that in the case of the 6in. wrought boarding there is a loss of 1/46th of actual covering capacity (the finished boards being then only about 5¼in. wide); whilst in the case of the matchboarding the loss of covering capacity is, of course, considerably greater, owing to the additional quantity absorbed in forming the tongue. When estimating the amount of prepared boarding required to cover a given area the builder must therefore make provision for any reduction in covering capacity which may be caused by the use of any particular description or width of prepared boarding as compared with its original width before being prepared. A similar custom applies generally to all wrought or prepared woodwork, unless expressly stated to the contrary. For example, it is usual to allow for a loss of 1/16in. for each wrought face, so that what is ordinarily known as a 2in. door or a 2in. board wrought both sides will only measure about 1⅞in. in actual thickness when finished. T. E. C.

Divisions between Adjoining Properties: Dilapidations, &c.

CHERTSEY.—QUAERO writes: "(*a*) Where there is no hedge, but a mound and ditch as shown on the accompanying sketch (not reproduced), where does the division line of the properties come? (*b*) When surveying for dilapidations and the margin or whole of the floor has been stained and varnished or polished, can this be required to be re-done, assuming the covenants to be strict and to embrace decorative work, such as papering, whitening and painting? (*c*) Are Venetian blinds to be included in the paintwork of a room under covenants such as the foregoing? (*d*) In settling dilapidation for a money payment, where it is admitted that walls must be repapered, can stripping be insisted on, or only sizing and preparing the old paper?"

(*a*) In the absence of any measurements which would enable the exact boundaries of the properties to be ascertained, custom generally fixes the division line at a point



COTTAGES AT MADRESFIELD COURT, MALVERN LINK, WORCESTERSHIRE. C. F. A. VOYSEY, ARCHITECT.

equi-distant from A and B, *i.e.* at a point halfway between the commencement of the ditch and the commencement of the mound. (*b*) In face of strict covenants for dilapidations, I am of the opinion that staining and varnishing the margin of the floor, or the entire floor, as the case may be, is reasonable. (*c*) Unless specially included as a fixture, and consequently a part of the freehold, I am of the opinion that the repainting of Venetian blinds does not come under a covenant for dilapidations, as such blinds do not form an integral part of a room and therefore would not come within the scope of a covenant affecting the room as such. (*d*) If the walls were papered direct on the plaster at the time the party against whom dilapidations are sought to be recovered took possession, then I am of the opinion that they will have now to be put in a similar condition, *i.e.* stripped and papered on the plaster; if however the contrary was the case it would be unreasonable to insist on stripping them, and the dilapidation as to papering should be assessed on the cost of papering over the existing paper. W. JOHNSON-ROBERTS.

Payment for Extras.

LLANELLY.—J. T. writes: "Some time ago I gave an estimate for additions and alterations to a house. I had orders to proceed with the work and it is now finished. There were many extras, which amounted to £14 4s. 6d.—nearly as much as my original estimate. The owners say they will only pay me £9 4s. 6d. What course should I take? My estimate was about £2 too low: can I claim this amount?"

You do not make it quite clear whether the amount in dispute is for extras alone or partly for substitutions in place of items in the original contract. Having made a contract you cannot now claim for the £2 which you omitted in your estimate, and we consider the clients are entitled to a rebate for anything estimated which was omitted, according to the terms of the estimate, notwithstanding that the omitted items may be those for which the £2 extra should have been charged. The account should be made up by deducting from the original tender all the amounts for work omitted and for which other has been substituted, and then charging the extra work as materials and labour. If your clients will not pay, send a lawyer's letter requesting immediate payment, and if then no adequate payment is made, sue for the amount in the county court.

S.K. Building Construction Examination.

NEWCASTLE-ON-TYNE.—STUDENT writes: "Which is the best book to study for the South Kensington Examination in Building Construction, Honours Part I.?"

See an answer on the subject of the South Kensington Examinations on p. 233 of our issue for May 28th last. A new edition of Mitchell's Elementary Stage Building Construction has just been published by Mr. B. T. Batsford, which has been greatly enlarged to meet the requirements of this examination.

Books on Masonry and Skeleton Steel Construction.

SHEPTON MALLET.—ENQUIRER writes: "(1) Where can I get information on details in stonework suitable for public buildings, &c.; also (2) information on steel construction for high buildings?"

(1) "Practical Masonry," by William R. Purchase (6s. nett), and "Architectural Examples in Brick, Stone, Wood and Iron," by William Fullerton (15s.). (2) "Skeleton Construction in Buildings," by W. H. Birkmire (12s. 6d. nett). These books are obtainable from Mr. B. T. Batsford, 94 High Holborn, W.C.

Books on Brick-making.

LONDON, W.C.—W. E. H. writes: "Kindly give the titles and prices of the best books upon the subject of brick-making, especially the latest works giving the most up-to-date methods of making bricks, both by machinery and by hand, and explaining the nature and composition of brick earth."

"Bricks, Tiles and Terra-Cotta," by T. C. Davis (price 21s.), is a comprehensive book, but Edward Dobson's "Bricks and Tiles" (price 2s. 6d.) is a good elementary treatise on the subject.

TWO COTTAGES AT MADRESFIELD COURT

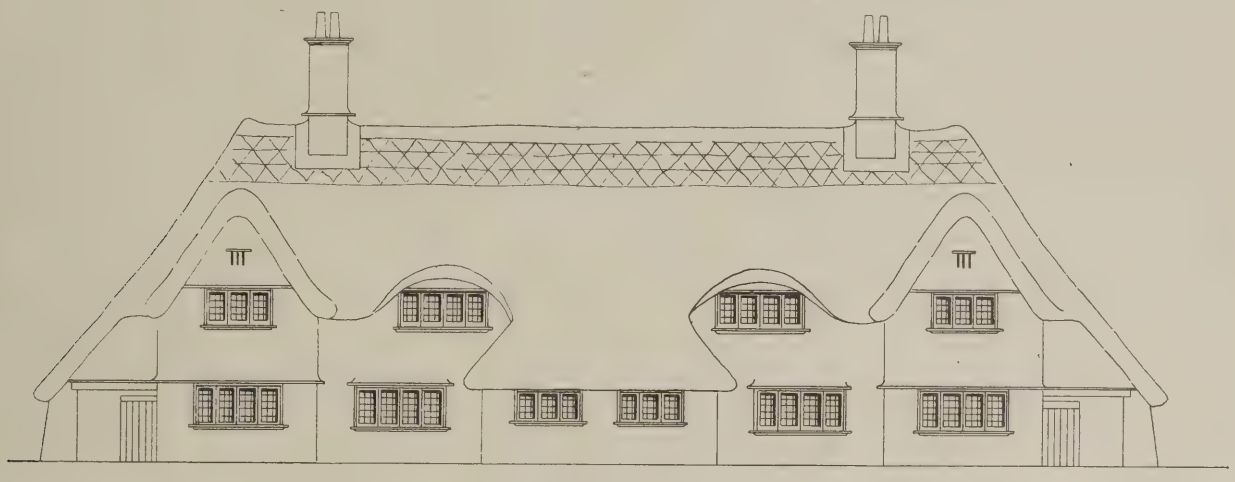
THESE two cottages are proposed to be built for the Right Hon. the Earl Beauchamp, K.C.M.G., in brick cement rough-cast and thatched with reeds with marram grass ridges; all the joinery to be in oiled oak. The perspective is a rough sketch done by Mr. Voysey without rule or measurement.

Surveying & Sanitation.

"Women as Sanitary Inspectors."—This is the title of a leaflet published by Messrs. P. S. King & Son, 2 and 4, Great Smith Street, Westminster (price ½d.), for the National Union of Women Workers. It gives a short account of the history of the movement, and then briefly enumerates the duties of women inspectors in workshops, laundries and tenement houses, as well as furnishing some particulars of the notification of infectious diseases and the training of sanitary inspectors.

Westminster Paving Scandal.—With the object of vindicating its action in connection with this subject, the Westminster Municipal Association (formerly the Westminster Ratepayers' Committee) has issued an elaborate pamphlet illustrated by photographic reproductions of the wood blocks employed, and including an account of the various proceedings in the King's Bench Division of the High Court of Justice and in the Court of Appeal. The hon. secretary of the Association is Mr. James MacConnell, 8, Regent Street, Waterloo Place, S.W.

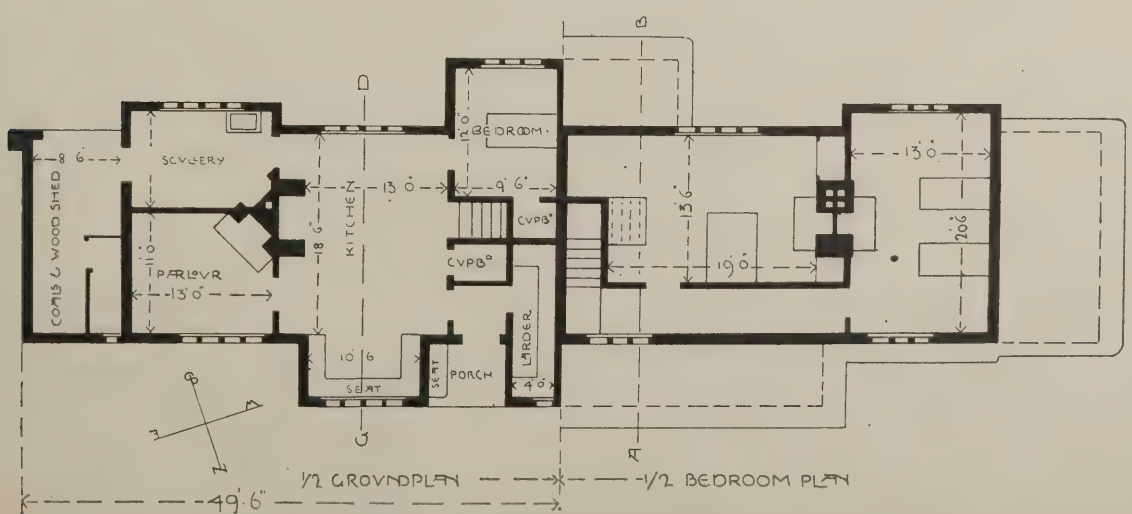
Doulton Ware at Health Congress Exhibition.—At the Health Exhibition held in connection with last week's congress of the Sanitary Institute at Manchester, Messrs. Doulton & Co., Ltd., showed a large variety of sanitary fittings. Among the closets those for works and schools were specially noticeable. One pattern consists of separate basins connected to one pipe fixed below the ground level, flushed by an automatic tank so that at one discharge the whole range is cleared; the action is syphonic and each basin is isolated. There was also a special low closet for children, on the wash-down principle with syphon cistern. A syphonic closet, certain and quiet in action with a good water-area, as well as a new valve closet with open overflow, were also exhibited. For drainage work a new automatic syphon was shown which will work with liquid sewers as well as clear water, acting with drop-by-drop supply. The baths were of different designs and included both ordinary plunge as well as shower and spray fittings. They were all vitreous enamelled inside, and in one or two instances outside as well—this ensures a perfectly smooth, glossy and lasting surface. Most of the lavatories, sinks, urinals, &c., and especially those for hospital use, were of strong white-glazed fireclay, which is strong and lasting and has a well-glazed surface; in many cases the ironwork used with it is vitreous enamelled, so that all exposed parts can be washed down. A mortuary table attracted attention. The slab was 6ft. 6in. long by 2ft. 6in. wide, dished and deeply grooved to one end. It was fixed on a vitreous enamelled centre column arranged to move on ball bearings, so that the top might be easily turned to any angle and then retained in that position by means of a simple check fitting. Another speciality was a sink for infectious hospitals, one pattern being worked by treadles and another by self-closing valves.



SOUTH ELEVATION



NORTH ELEVATION



COTTAGES AT MADRESFIELD COURT, MALVERN LINK, WORCESTERSHIRE. C. F. A. VOYSEY, ARCHITECT

THE SANITARY INSTITUTE CONGRESS.

IN our last issue we published Earl Egerton's inaugural address to the Congress of the Sanitary Institute at Manchester, which congress continued throughout the whole of last week.

Municipal Sanitation.

On Wednesday a conference of municipal representatives was held in the Large Hall of the Municipal School of Technology. Mr. Alderman M'Dougall, vice-chairman of the Sanitary Committee of the Manchester Corporation, who presided, said he thought members of public bodies might be encouraged by the increased confidence felt by the general public in the value of sanitary precautions and regulations. There was strong encouragement also in the earnest and combined efforts on the part of sanitary authorities to obtain additional powers to simplify and extend their activities. That was especially the case in dealing with insanitary dwellings and the provision of houses for the working classes. Mr. M'Dougall made reference to the work done in Manchester in the direction of the prevention of the pollution of the atmosphere by smoke and in dealing with insanitary houses. During the past fifteen years, he said, under the powers of a local Act about 7,300 of such houses had been made habitable, the cost being principally borne by the owners and the portion contributed by the Corporation being not more than £25,000.

Amending and Consolidating the Public Health Acts.

The Public Health Acts in regard to sewers and drains were very unsatisfactory, as by the various decisions in the law courts a very considerable cost was thrown upon the rates which ought, in equity, to be borne by property-owners. This was a matter which required the urgent and immediate attention of all municipal authorities. In Manchester alone during the last six years £39,367 had been charged to the city rates, the greater portion of which ought, in justice, to have been borne by property-owners. The Municipal Corporations Association should be requested to urge upon the Government the necessity for amending these Acts.

Mr. W. H. Wells (chief sanitary inspector, Newcastle-on-Tyne) read a paper also advocating the reconstruction and consolidation of the Acts and proposing a resolution to that effect.

Dr. Boobbyer (Nottingham), the recording secretary of the Conference, said that when he brought the resolution before the council of the Institute he would do his best to impress upon that body the unanimous feeling of the conference with regard to the matter.

The 1901 Factory Act.

The medical officers of health met in the Chemical Theatre at the Owens College, under the chairmanship of Dr. Niven, medical officer of health for Manchester. Dr. A. Greenwood (Blackburn) read a paper on "Defects in the 1901 Factory and Workshop Act." He said a defect of the new Act was that it failed to place the sanitary control of factories under local authorities. Under the Factory Act the medical officer of health had no right of entry into a factory, but must wait until the factory inspector forwarded his notice, which was often sent first to the clerk to the local authority and then handed to the medical officer of health.

A conference of engineers and surveyors was held in the Chemical Theatre of the School of Technology. Mr. C. Jones (borough engineer of Ealing), who presided, in his opening address traced much of the sanitary progress of the last fifty years to losses sustained by the Royal Family, losses which, he said, stirred the minds of people to the necessity of taking steps to improve sanitary arrangements. He spoke of some of the ideas that had been put forward in the half century and that had proved fallacious, and yet, he added, these ideas were not useless, because better methods had been based upon the so-called failures. The advance in processes for the treatment of sewage was quoted as an instance. In another part of his address the president spoke of the changes that had taken place during his own experience in connection with the municipal engineer, his training and his duties.

Methods of Sewer Ventilation—Natural, Artificial, Deodorization.

Dr. W. F. Dearden, chairman of the Special Committee of the Manchester Corporation *re* ventilation of sewers, read a paper on sewer ventilation, in order, as he said, "to get to know something about the subject" for the benefit of Manchester. Dr. Dearden presented a summary of the present condition of things. All methods, whether in actual use or only advocated, could be classified, he said, under the three headings of natural ventilation, artificial ventilation and deodorization. Speaking first of the principle of providing fresh air in such sufficiency as to render the sewer air practically similar to that outside, Dr. Dearden said that of sixty towns which had supplied his committee with particulars twenty-eight pinned their faith to surface grids, although twenty of these had found it advisable to erect a few shafts under special circumstances. A modern sewer, placed in a broad street, should under ordinary circumstances give little trouble with the surface grid in proper operation, but there were objections. It was a common belief that several of the zymotic diseases could be communicated to persons who had been kept in too close proximity to a street grid. This belief should either be proved correct or its fallacy exposed, and it was the intention of the Manchester Committee to have fresh bacteriological experiments made to ascertain the comparison, bacteriologically, between the air of sewers and that to be found in the streets outside. The character of the sewer air emitted from surface grids as a disease-spreading agency was the factor to take into consideration before any of the numerous authorities who have so extensively utilised this system could justify themselves in making an entire change of scheme. Twenty-three of the sixty towns effected their ventilation by a combination of surface grids and high shafts. Experiments at Leicester had proved that this was no ideal way of attaining the end in view. In four towns the drains were disconnected and the sewers ventilated solely by high shafts. These shafts were satisfactory for the purpose aimed at. From a municipal point of view, however, the main point for consideration was whether the cost and utility were quite proportionate. Dr. Dearden asked if there was sufficient evidence of the danger of surface grids to justify a corporation in making so radical a change at so great a capital outlay as would necesssarily be entailed; and he then briefly described the methods of artificial ventilation and of deodorization by the suspension of "pyrozone" blocks beneath the grids and the fitting of air filters and deodorants.

Mr. Alfred M. Fowler also read a paper on sewer ventilation. He urged that to guard against the contingencies of deposits in the sewers and the effluvia arising therefrom it was both desirable and necessary to provide ventilation, so that sewer air might be diluted with as much fresh air as possible and passed off as far away from the inhabitants as practicable. Mr. Fowler referred to the ventilation system recently invented by Mr. Shone as based on scientific and quite original principles. A mechanical fan is the initial power, and the process is to draw continuously into the sewer a given quantity of fresh air. Concerning upcast shafts Mr. Fowler said his experiments had shown successful ventilation, but it had not been in the absence of street surface ventilators.

Mr. J. F. Price (Birmingham) spoke of the difficulties that had to be dealt with in towns where there was no perfect type of drainage and where there were many old sewers of which there was no knowledge. An artificial system of sewer ventilation for Birmingham, he said, would cost £125,000, and if it were provided he did not think it would be absolutely perfect.

Mr. Whyatt stated the difficulties of sewer ventilation at Grimsby, where one-fifth of the town is below high-water level.

Mr. Grimshaw (Manchester) suggested the judicious employment of ventilation openings—few in the crowded districts, and a greater number where the air-space was greater.

Dr. Nash, Dr. S. Rideal, Mr. Price (Lytham), Mr. Brodie (Blackpool), Mr. Mawbey (Leicester) and Mr. Parker (Hereford) joined in the discussion.

Mr. J. Corbett, the borough engineer of Salford, read a paper in which he described a new sewer-scouring machine of his own invention. The machine is intended to pulverise and loosen deposited silt, and its work is to be supplemented by flushing to carry the loosened silt down the sewer. The chief value of the machine is in the economy which its use will exercise as compared with the practice of sinking frequent holes to silted sewers and clearing with hand labour.

Professor Archibald Sharpe read a paper describing the ways in which motor vans may be employed in municipal work; and Mr. W. H. Hamblett, of Salford, gave a paper on "Refuse disposal and destruction."

A conference of ladies to discuss hygienic questions and the application of hygienic principles to everyday life was presided over by Mrs. W. O. Meek at the Owens College.

On Wednesday evening, at the Whitworth Hall, Dr. W. N. Shaw gave the Congress lecture upon "The Treatment of Smoke: A Sanitary Parallel" (given at length in another part of this issue, see p. 71).

Sir Alexander Binnie on Water Supply.

Sir Alexander R. Binnie (London), president of the Engineering and Architectural Section, said the cleanliness and sanitation of the large towns had greatly improved during the last forty years, and there had grown up in the public mind a conviction that it was only by rigid enforcement of proper sanitary regulations that the public health could be preserved. An advance had been made by endeavouring to conform to the great laws of nature governing the removal of dead organic matter and the preservation of the purity of air and water.

Personally he still held the belief that a water supply should be not only pure and uncontaminated, but beyond suspicion of any possible pollution whatever. "In recent years," Sir Alexander continued, "I fear that a little laxity, due probably to our improved sewage purification, is creeping in, and that we find large populations supplied with water which has received directly or indirectly many sewage affluents. From this I draw the conclusion that either our large towns, such as Edinburgh, Glasgow, Manchester, Leeds, Liverpool, Bradford, Birmingham and many others, have uselessly expended millions of money in attaining an ideally pure water-supply, or that the people of London are running a great risk in continuing to depend almost entirely on the waters of the Thames and the Lea, which receive the more or less clarified sewage effluent of over a million and a quarter persons. I am inclined to believe with the late Sir George Buchanan that large populations can continue to drink water which has been contaminated with apparent impunity, but that sooner or later such water

takes on itself morbific qualities which lead to death and disease." Respecting pure air and fogs Sir Alexander said that no doubt a great improvement was effected by proper drainage, but when towns or cities were situated in large river-valleys such as the Thames and, like London, with one-tenth of the area below high-water level, it was unreasonable to expect that fogs could be abolished, however much could be done to alleviate the dirt and misery caused by them, by a proper and economical use of fuel. What really was required was a cheap and economical heating gas. This was not an impossibility. With electricity for the internal illumination of our houses, with gas fuel for heating and cooking purposes, and a cheap incandescent gas lamp for street use, he felt certain that great improvement could be made in the air of our towns.

On Thursday a paper was read by Mr. E. George Mawbey, M.I.C.E. (Leicester), on

The Sanitation of Road Traffic,

in the course of which he said:—Dr. S. Rideal has already made some bacteriological experiments to ascertain the number of organisms present on the asphalt paving in Victoria Street, Westminster, and also to test to what extent the bacteria can be destroyed by street watering, adding permanganate of potash of certain strengths of solution. The menace to health by the fouling of the surfaces of the streets of our towns is an established fact, and this is combated by scavenging and watering at a considerable cost to the community. At Leicester more than £10,000 per year is expended on this work, 18,000 tons of sweepings being annually collected from the roads and streets of the borough.

In the very best cleansed towns the first washings of streets which reach the drains and sewers are very foul, and in all streets but those with practically impermeable paving a portion of this foul liquid obviously soaks down, and in many towns there are large areas of stone-paving bedded and racked up or jointed in gravel or other very permeable material. It can hardly be denied that such a pervious stratum of material, consisting of old stone paving macadam, and even soft wood-paving, is polluted to an extent which no sweeping, watering or washing can remedy. It is also obvious that such a polluted stratum forms a fruitful culture-bed for bacteria.

The practice adopted in some places of using the dirty and polluted scrapings off macadamised roads in towns for binding material for the re-coating of such macadamised roads, instead of clean new or washed material, is to be most strongly deprecated. I would urge the extension of the system of thoroughly washing street pavements, and the carrying-out of street sweeping during the night time, preceded by efficient watering. In Leicester "pyrozone" blocks in the water carts are used as a disinfectant, and there is no evidence of the drawbacks which have been attributed to the use of permanganate of potash.

The financial aspect of this problem is the most difficult of solution. Tar-paving, which, I believe, is being recommended by Mr. E. Purnell Hooley, the county surveyor of Nottingham, would be an excellent step in the right direction in substitution of ordinary macadamised roads, where its first cost and maintenance can be met.

Mr. H. D. Searles-Wood, F.R.I.B.A., read an important paper on "Means of Escape in Case of Fire": this we are obliged to hold over till next week.

Mr. Clayton Beadle (Sidcup) read a paper on "The Abstraction of Underground Waters and its Local Effects," in which he sought to show that rainfall deficiency could not be made to account for the drying up of many of our rivers, and that pumping had a material effect upon the flow of many springs and rivers.

Mr. L. Hanks (London) read a paper on "Sanitary House Decoration," which, from want of space, we are also obliged to hold over till next week.

Papers on Sanatoria were read by Mr. Edwin T. Hall, F.R.I.B.A., Mr. W. Cecil Hardisty, and Mr. W. S. Cross, F.R.I.B.A. and Dr. A. G. Welsford, which papers we shall also publish in another issue.

A New Sterilizer.

Dr. Henry E. Armstrong described an apparatus for the disinfection by steam of the excreta in cholera and enteric fever, devised by Mr. W. G. Laws, city engineer of Newcastle, and himself: a sterilizer which has given satisfaction at Newcastle Each apparatus consists of a pan of 30 gals. capacity, placed in an annexe to the offshoot for the ward conveniences. Leading into it are the waste-pipes from the water-closet and slop-sink, their outlets into the pan being governed by a three-way cock, which also controls the outlet pipe from the sterilizer. Steam is conveyed into the pan by two separate pipes, one of which (sterilizing) reaches to the bottom, the other (ejecting) ends inside the cover of the pan. The *modus operandi* is as follows:—When the pan is about two-thirds full an electric bell, operated by a float on the surface of the liquid contents, rings to call the attendant, who closes all of the valves. The sterilizing cock is then turned on, and steam entering at the bottom rapidly raises the temperature to about 250 degs. Fahr. After maintaining this temperature for fifteen minutes, which is ample for the sterilization of the liquid, the sterilizing steam cock is closed and the steam ejecting cock is opened. Shortly afterwards the outlet valve is opened, when the whole of the liquid is at once discharged into the cooling tank and the pan is washed out. A charge can be dealt with every half hour, thus allowing the sterilization of from 200 to 250 gals. daily from each ward, an ample provision for twenty patients.

Mr. J. P. Wilkinson, A.M.I.C.E., gave a full description of the new works for the biological treatment of the sewage of Manchester, summarized particulars of which were given by Earl Egerton in his inaugural address (see p. 67 of our last issue).

The Cost of the Manchester Experiments.

Mr. Gilbert J. Fowler, of Manchester, gave a resumé of the Manchester experiments, from chemical and bacteriological standpoints. He pointed out that the drainage area of Manchester, including Audenshaw and Stratford, was 11,800 acres. The population coupled up to the sewers was estimated in March, 1902, at 564,000, and the ratable value for sanitary purposes was £3,523,000. The cost of treatment per million gallons of sewage by the precipitation method for the year ending March, 1901, amounted to £1 9s. 8½d. The cost of chemical treatment and sludge disposal was from £11,000 to £13,000 per annum. Sludge disposal cost 12s. 1·6d. per million gallons and precipitation 8s. 8d. He believed there were certain times and certain conditions where chemical treatment followed by filtration was a suitable process.

Effluents from Works.

A paper was contributed by Mr. J. Hubner (director of the Dyeing Department of the Manchester Municipal School of Technology) on the treatment of effluents from bleach works, dyehouses, print works and paper mills. He said community of interests would seem best protected by community of action; yet enormous sums of money had been, and were still being, expended by individual firms on the erection and maintenance of plant for the purification of waste waters from works of the kind mentioned. Greater economy of working would attend co-operative action by bleachers, dyers, calico printers and paper makers in a matter of such importance as the treatment of their effluents. The establishment of well-equipped laboratories, and the employment of a staff of highly-qualified chemists and engineers, would entail but a trifling expenditure by each firm concerned, whilst under the conditions at present prevailing the profit-earning of individual concerns might be seriously affected by heavy expenditure upon the investigation of methods of effluent treatment.

Prof. Henry Robinson, M.I.C.E., read a paper on

The Biological Purification of Sewage,

in the course of which he said:—

In the year 1884 I was instructed to endeavour to treat the sewage of a town upon an extremely small area of land, without incurring the expense of chemical precipitation. I constructed a chamber with an iron grating near the bottom. On this grating I placed layers of stones of various sizes and the crude sewage passed upwards, the bulk of the suspended matter in the form of sludge being arrested. This was pumped out at intervals and disposed of on farm land adjoining. I found that the solids thus arrested became liquefied and the resultant fluid gave better agricultural results than had previously been obtained from crude sewage. I arrived at the conclusion that the liquefaction of the solids was due to a cesspit action having been set up in the interstices of the stones, whereby the first putrefactive change was effected and the subsequent further treatment, either on land or otherwise, facilitated. Since that time I have had to advise with reference to works where both anaërobic and aërobic chambers have been employed, and I have obtained excellent results by anaërobic action with interstices. I am quite aware of and desire to recognise the fact that good results are being obtained by cesspit or septic action without such interstices.

As regards aërobic action there are several ways in which impure effluents from sewage works can be purified. My opinion on this point may be stated in the words that I employed at the Conference on Water Supply and River Pollution over which I presided last October: "Where sufficient land is not available, or where it is unsuitable for sewage disposal, then the further treatment of the liquid in aërobic beds enables any required standard of effluent to be attained. Inasmuch as the purification of foul fluid by aërobic action is dependent on aëration, it would appear best to subject the fluid constantly to exposure to the air. This would be better effected when the liquid trickles over open surfaces of hard stone, clinker, or other material in the aërobic beds than would be the case were the beds worked on the intermittent system, namely, first filled, then emptied, and then left to rest. I am aware that difference of opinion exists on this point, and prefer to keep an open mind on the subject at present."

I have stated that the material placed in bacteria beds should be of suitable quality, as this is an essential to success. I have had to examine beds which have been pronounced complete failures, owing to the fact that they were filled with all sorts of most unsuitable material, which inevitably caused an early choking of the interstices. I have also seen sewage applied to beds without the necessary arrangements having been provided for arresting inorganic and other matters before the admission of the fluid to the bed. Any works will be failures if the necessary conditions for success are not observed.

At the closing general meeting of the congress, held on Friday at Owens College, the secretary reported that the total attendance had been 2,100, including 759 delegates, 750 members of the Institute and 100 ladies; 250 complimentary tickets had been issued.

Engineering Notes.

Electric Tramways at Richmond.—The London United Electric Tramways system has been extended from Twickenham to Richmond, and is now opened for traffic. It is now possible to travel from Richmond to Hammersmith or Shepherd's Bush by electric car.

Indian Steel.—Mr. Tatta, of Bombay, a Parsee millionaire, has completed a scheme for working the enormous deposits of iron ore in the Central Provinces. He has the support of the Indian Government in the enterprise, which is arousing great excitement, as it is believed that with its cheap labour India will be in a position to supply the world with steel.

An Accident at the Tay Bridge, Dundee, occurred last week. A number of painters were engaged on the structure painting the high girders. To do this they had to stand on a car which ran on rails. Boisterous weather prevailed, and the inspector, fearing an accident would result, gave orders to the gang to cease work. This was done; but before the men had time to leave a terrific gust of wind struck the car, sending it with great speed along the line. Frantic efforts were made by the men to stop the vehicle, but without success, and, the wheels leaving the metals, the men were thrown off. Alexander Falconer and William Howie fell into the river, 80ft. below, and were lost; but the others saved themselves by catching hold of different parts of the bridge and escaped with minor injuries.

Tenders.

Information from accredited sources should be sent to "The Editor" at latest by noon on Monday if intended for publication in the following Wednesday's issue. Results of Tenders cannot be accepted unless they contain the name of the Architect or Surveyor for the work.

Addressed postcards on which lists of tenders may be stated will be sent post free on application to the Manager, BUILDERS' JOURNAL, *Effingham House, Arundel Street, Strand, W.C.*

Bellericay (Essex).—For constructing sewers, manholes, lampholes, &c.; also for construction of outfall works, tank and filters, and irrigation at Brook Street, South Weald, for the Bellericay Rural District Council. Mr. John Simmons, engineer, Doncaster:—

Raynor	£2,295 18
Hayward, Grays	2,251 0
Marsh, Orsett Heath	2,250 0
White, Romford	2,169 0
Harris & Rowe, Shoeburyness	1,900 0
J. Jackson, Forest Gate	1,850 0
Wilson, Border & Co., Ilford	1,835 0
W. Manders, Leyton	1,799 16
Thompson & Wilkinson,* Upminster	1,781 0

* Accepted.

Doncaster.—For supply, delivery and fixing of an ejector condenser plant, with all necessary pumps, piping, &c., at the Corporation Electricity Works, Doncaster, for the Corporation. Mr. W. Wyld, borough electrical engineer:—

T. Ledward & Co.	£1,213 0 0
Korting Brothers	1,095 5 0
Klein Engineering Co., Manchester	1,075 0 0
Geipel & Lange,* Parliament Mansions, Westminster, S.W.	1,069 10 9
R. Morton & Sons	1,051 0 0

* Accepted. [Rest of London.]

Dukinfield.—For the sewering, &c., of the following streets, for the Corporation, namely, Crescent Road, Old Road, Ashton Street and Bridge Eye district. Mr. Samuel Hague, borough surveyor:—

Crescent Road and Old Road.

L. Beddows & Co., Pendlebury	£1,868 9 0
G. Wilde, Dukinfield	1,296 16 0
Etheridge & Clark, Manchester	1,083 11 0
W. Underwood & Brother, Dukinfield	1,061 3 0
W. H. Worthington,* 59 Rusholme Road, Manchester	944 13 0

King Street and Wharf Street.

L. Beddows & Co.	£1,082 9 0
W. H. Worthington	380 18 0
G. Wilde	290 3 3
Pryke & Hayward, Poulton-le-Fylde	288 11 8
Etheridge & Clark	216 0 3
W. Underwood & Brother*	195 2 0

Ashton Street district.

L. Beddows & Co.	£1,084 13 6
W. H. Worthington	567 14 3
G. Wilde	557 12 0
Etheridge & Clark	543 13 0
Pryke & Hayward	535 19 6
W. Underwood & Brother*	493 1 0

Bridge Eye district.

L. Beddows & Co.	£483 10 0
W. H. Worthington	299 4 6
Pryke & Hayward	296 19 1
Etheridge & Clark	281 9 6
G. Wilde	272 7 0
W. Underwood & Brother*	252 2 6

* Accepted.

Frinton-on-Sea.—For additions and alterations to Beach House, Frinton, for Mr. R. P. Cooper, J.P. Messrs. Homer & Son, architects, Frinton, and 35 Bucklersbury, London, E.C.:—

H. Potter	£3,750	E. Mills	£2,769
G. D. Collins	3,179	R. Moore*	2,402
P. H. Oxley	3,125		

* Accepted.

Gosforth.—For making-up the following streets, for the Gosforth Urban District Council:—(Contract No. 1) Purcell Street South, Purcell Street North, Dunn Street, Chapel Street, South Street, West Street, Lambert Square (part of), Wall Street, Mary Agnes Street, John Street, Coronation Street and back streets, &c.; (2) Ashburton Road (part of), Ashfield Road, Wolsingham Road, North Avenue (part of), Broomfield Road, Mayfield Road, Woodbine Road (part of), Woodbine Avenue (part of), West Avenue (part of), Hawthorn Road (part of), Gordon Avenue (part of), Causey Street (part of) and back streets, &c.; (3) Spittal Terrace (part of), Rothwell Road (part of), Alwinton Terrace (part of), Bath Terrace (part of), Harley Terrace (part of), Woolley Terrace (part of), Beaumont Terrace (part of), Hyde Terrace (part of), and back streets, &c.; (4) Rectory Road (part of); Stoneyhurst Road (part of), Balmoral Terrace (part of), Windsor Terrace (part of), Sandringham Road (part of), Audley Road (part of), William Street, and back streets, &c. Mr. C. J. Baff, surveyor:—

Contract No. 1.

Wardlow, South Shields	£3,494 0 4
Thompson, Gosforth	3,092 1 9
Appleby, Embleton, Northumberland	3,072 17 6
Edgar Brothers, Heaton, Newcastle-on-Tyne	3,052 4 4
Robson, Newcastle-on-Tyne	2,971 18 7
Hollings, Burnside, Wallsend	2,919 17 11
J. McLaren, Gosforth	2,856 15 6
T. & R. McLaren, Woodside, Christon, Bank, Northumberland	2,796 13 6
Simpson,* Newcastle-on-Tyne	2,378 6 8

[Surveyor's estimate, £2,937 14s. 6d.]

Contract No. 2.

Wardlow	£3,923 14 10
J. McLaren	3,417 1 7
Thompson	3,397 18 5
Edgar Brothers	3,379 8 6
T. & R. McLaren	3,322 7 7
Appleby	3,319 10 0
Robson	3,092 11 10
Simpson*	3,072 1 2
Hollings	2,337 15 9

[Surveyor's estimate, £3,480 3s. 6d.]

Contract No. 3.

Wardlow	£2,130 9 8
Edgar Brothers	1,980 17 3
Appleby	1,913 19 0
T. & R. McLaren	1,874 4 9
Robson	1,847 16 0
Thompson	1,825 15 9
J. McLaren	1,823 18 4
Hollings	1,778 9 6
Simpson*	1,769 7 1

[Surveyor's estimate, £1,826 3s. 6d.]

Contract No. 4.

Wardlow	£2,385 10 11
Hollings	2,030 1 0
Edgar Brothers	2,051 11 10
T. & R. McLaren	2,041 18 3
Appleby	1,972 0 4
Simpson	1,969 6 7
Thompson	1,930 5 4
J. McLaren	1,859 15 6
Robson*	1,849 8 7

[Surveyor's estimate, £2,069 12s. 3d.]

* Accepted.

London.—For repair of internal roads at the Gore Farm Hospital, for the Metropolitan Asylums Board:—

R. Ballard, Ltd., Child's Hill, N.W.	£5,732 10 0
T. Free & Sons, Maidenhead	5,651 7 9
H. Woodham & Sons, Sangley Road, Catford, S.E.	5,089 0 0
T. Adams, Green Lanes Goods Station, Wood Green, N.	4,612 15 2
Road Maintenance and Stone Supply Co., Ltd.,* Gravesend	4,544 2 1
J. Meston,† 60 St. Mark's Road, North Kensington, W.	4,330 18 3

* Accepted. † Withdrawn.

London.—For the erection of workshops in Hollybush Gardens, for Mr. J. Joseph. Mr. Edward Brown, architect, 150 Minories, E.C.:—

W. G. Brown	£1,378 19
Johnson Brothers	1,218 10
Bishop	1,185 0
H. Hood*	1,130 0

* Accepted.

London, E.—For the erection of new warehouses in Durward Street, Whitechapel, for Messrs. Kearley & Tonge, Ltd. (sub-structure). Messrs. William Eve and Sons, architects, 10 Union Court, Old Broad Street, E.C.:—

Foster & Dicksee	£2,015	Patman & Fotheringham	1,633
Holloway Brothers	1,785	Harris & Wardrop,* Wallwood Street, Limehouse, E.	1,549
Perry Brothers	1,687		
Killby & Gayford	1,663		
Nightingale	1,639		
F. & H. F. Higgs	1,624		

* Accepted.

Lowestoft.—For the erection of Baptist Schools, Grove Park, Lowestoft. Messrs. George Baines, F.R.I.B.A., and R. Palmer Baines, architects, 5 Clement's Inn, Strand, London, W.C.:—

W. Knights	£2,040 12 9
J. Welham	1,812 10 0
R. C. Todd	1,799 0 0
G. Elsey	1,710 0 0
Bedwell & Parker	1,690 0 0
C. R. Cole	1,670 0 0
C. E. Earl*	1,466 17 0

* Accepted with modifications.

Norton-under-Cannock (Staffs).—For erection of Walsall Wood School Board, for the Norton-under, Cannock (U.D.) School Board. Mr. T. H. Fleeming-architect, Darlington Street, Wolverhampton:—

Lynex, Walsall	£2,890 0 0
Harris, Sheffield, near Walsall	2,816 0 0
Cave & Son, Wolverhampton	2,750 0 0
Willcock & Co., Wolverhampton	2,689 0 0
T. & S. Ham, Wolverhampton	2,620 0 0
Tildesley, Willenhall	2,600 0 0
Wistance, Walsall	2,549 18 0
Herbert, Wolverhampton	2,510 7 6
Gough, Wolverhampton	2,455 0 0
Speake & Sons, Wolverhampton	2,404 0 0
Cresswell,* Walsall Wood, near Walsall	2,321 0 0

* Accepted.

New Barnet.—For the labour and materials for constructing about 157yds. of 12in. pipe sewer, 1,463yds. of 9in. pipe sewer, and 1,339yds. of 6in. pipe sewer, with all necessary manholes, gullies and appurtenances complete, within their district, for the East Barnet Valley Urban District Council. Mr. Henry York, surveyor, Station Road, New Barnet:—

W. M. Butcher, New Barnet	£3,212 2 0
E. Rogers & Co., Kensington, S.W.	2,833 0 0
C. Ford, Harlesden	2,398 0 0
T. Adams, Wood Green	2,205 14 4
G. Bell, Tottenham	2,191 0 0
G. Rayner, West Croydon	1,995 0 0
W. S. Kitteringham, Waltham Cross	1,984 0 0
E. T. Bloomfield, South Tottenham	1,920 0 0
J. A. Dunmore, Crouch End	1,864 0 0
R. W. Swaker, Hounslow	1,815 5 0
E. J. Betts,* Enfield Highway	1,785 13 4

* Accepted.

Parkeston (Essex).—For the erection of new schools for 570 children, and alterations to the present schools, boundary walls, playgrounds, &c., for the Ramsey School Board. Messrs. Start & Rowell, P.S.I., A.R.I.B.A., architects, Colchester. Quantities prepared by the architects:—

Oak Building Society, Cambridge	£6,875
A. E. Symes, Stratford	6,679
C. & J. Ambrose, Colchester	6,059
A. W. Robins, Wanstead	5,786
McKay, Clacton-on-Sea	5,720
F. Bennett, Ipswich	5,181
W. Chambers, Colchester	4,997
E. West, Chelmsford	4,959
Grimwood & Son, Sudbury	4,885
E. Saunders, Dovercourt	4,799
Theobald, Chappel	4,592
Dupont & Co., Colchester	4,126
R. Beaumont, Lexden, Colchester	4,112
Smith & Beaumont,* Harwich	4,096

* Accepted.

Southwold (Suffolk).—For sub-piling part of the present cliff protection works, for the Corporation:—

Leggett & Speight, Hull	£1,498 0 0
G. Hayward, Hornchurch	1,400 0 0
J. C. Trueman, Stroud	1,298 0 0
W. Gradwell & Co., London	1,154 7 0
W. King, Southwold	1,030 0 0
Pedrette & Co., London, N.	987 5 6
T. W. Pedrette,* 84 Bethune Road, Stamford Hill, London, N.	980 0 0

* Accepted.

Surbiton.—For private street works at Kingsdown Road, Surbiton (length, about 400 yards), for the Surbiton Urban District Council:—

London and County Builders, Wandsworth	£2,109 6 5
S. Atkins, Kingston-on-Thames	1,628 11 0
Parry & Co., Fulham	1,625 0 0
S. Kavanagh & Co.,* Surbiton	1,366 0 0
W. Adamson, Kingston-on-Thames	1,295 0 0

* Accepted.

Swindon.—For extensions to technical school buildings, Victoria Road, for the Corporation. Messrs. Bishop and Pritchett, architects, Regent Circus, Swindon:—

C. Williams	£2,477 0
H. & C. Spackman	2,418 0
A. J. Colborne	2,346 8
J. Williams	2,300 0
J. G. Norman*	2,272 0

* Accepted. [All of Swindon.]

Westbury-on-Trym (Bristol).—For the erection of a cemetery chapel at Canford Lane, Westbury-on-Trym, for the Barton Regis Rural District Council. Messrs. La Trobe and Weston, F.R.I.B.A., architects, 20 Clare Street, Bristol:—

H. W. Harris, Westbury-on-Trym	£1,625 11 5
J. Flower, Shirehampton	1,456 0 0
Eastabrook & Son, Pennywall Road	1,439 0 0
A. E. Longden, Eastville	1,390 0 0
S. R. Sowett, 2 City Road	1,357 0 0
E. A. Chase, 11 Richmond Avenue	1,336 10 0
J. E. B. James, 17 Milk Street	1,308 15 0
J. Perkins, 62 Lower Redland Road	1,265 0 0
W. & J. Bennett, Pennywell Road	1,250 0 0
Hatherley, Brislington	1,242 9 6
E. Love, 127 Hampton Road	1,170 0 0
E. Walters, Richmond Road, Montpelier	1,150 0 0
E. Clark,* Fishponds	1099 0 0

* Accepted.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDERS MAY BE OBTAINED.
	BUILDING:		
Sept. 18	Woolwich—Municipal Buildings	Borough Council	A. B. Bryceson, Town Clerk, Town Hall, Woolwich.
„ 18	London, S.E.—Operating Room at Infirmary	Southwark Union Guardians	G. D. Stevenson, 13 & 14 King Street, Cheapside, E.C.
„ 18	Devonport—Buildings at Gasworks	Corporation	J. F. Burns, 29 Ker Street, Devonport.
„ 18	London, S.E.—Converting Railway Arch into Stables, &c.	Southwark Union Guardians	G. D. Stevenson, 13 & 14 King Street, E.C.
„ 18	Woolwich—Greenhouse	Borough Council	F. Sumner, Borough Engineer, Maxey Road, Plumstead.
„ 18	Richmond, Surrey—Dining Hall and Laundry at Workhouse	Guardians	P. H. Chambers, 17 The Green, Richmond.
„ 18	Belfast—Stores	Bell & Co.	W. H. Stephens & Son, Quantity Surveyors, Belfast.
„ 19	Pontllanfraith—Twenty Cottages	Tredegar Junction Bldg. Club	Tredegar Junction Hotel, Tredegar Junction.
„ 19	Swadlincote—Engine and Boiler House, Stores, Roof, &c.	Urban District Council	G. B. Smedley, General Manager, Gasworks, Swadlincote.
„ 20	Tal-y-llyn, near Brecon—Four Houses	J. Stephens	H Waters, Architect, Beaufort.
„ 20	Perth—Houses for Working Class	Town Council	R. M'Killip, 12 Tay Street, Perth.
„ 20	Elland, Yorks—House, &c.		R. Berry, Architect, Commercial Street, Halifax.
„ 20	Kirkcaldy—School, &c.	Burgh School Board	W. Williamson, 220 High Street, Kirkcaldy.
„ 20	Hest Bank—Mission Room		T. J Wilkinson, 51 Market Street, Lancaster.
„ 22	Featherstone—Extension of Schools	School Board	W. Hamilton, Architect, Station Lane, Featherstone.
„ 22	Fighting Cocks—Seven Almshouses		Clark & Moscop, Architects, Darlington.
„ 22	London, E.—Stores, Cart and Van-Sheds, Lodge, Urinals, &c.	Stepney Borough Council	M. W. Jameson, 15 Great Alie Street, Whitechapel, E.
„ 22	London, N.—Dwarf Wall, &c.	Hornsey Urban District Council	E. J. Lovegrove, Engineer, Southwood Lane, Highgate, N.
„ 22	Birkenshaw, Yorks—Pair of Villas		Walker & Collinson, Architects, Swan Arcade, Bradford.
„ 22	Selly Oak, Birmingham—Alterations, &c., to House	King's Norton Union Guardians	Master of the Workhouse, Selly Oak.
„ 22	Southborough, Kent—Schools	School Board	C. H. Strange, 20 Dudley Road, Tunbridge Wells.
„ 23	Dublin—Transformer Sub-Station	Electric Lighting Committee	S. Harty, City Engineer, City Hall, Dublin.
„ 23	London, W.—Board Room, Offices, &c.	Hammersmith Bd. of Guardians	J. H. Richardson, 87 Finsbury Pavement, E.C.
„ 24	London, W.—Dwellings	Hammersmith Borough Council	H. Mair, Borough Surveyor, London, W.
„ 24	Burton Salmon—Station Buildings, Warehouse and Station-master's House.	North-Eastern Railway Co.	W. Bell, Company's Architect, York.
„ 24	Lostock Hall, near Preston—Excavation and Carriage Shed	Lancs and Yorks Railway Co.	Engineer, Hunt's Bank, Manchester.
„ 24	Penkhull, Stoke-upon-Trent—Alterations, &c., to Cottage Home.	Stoke-upon-Trent Union Gdns.	C. Lyman, Architect, Stoke.
„ 24	South Bank, near Middlesbrough—Police Station	North Riding County Council	W. H. Brierley, 13 Lendal, York.
„ 24	Sutton, Surrey—Laundry	Metropolitan Asylums Board	Newman & Newman, 31 Tooley Street, London Bridge, S.E.
„ 24	Wigan—Engine Shed, &c.	Lancs and Yorks Railway Co.	Engineer, Hunt's Bank, Manchester.
„ 24	South Shields—Bricks, Cement, &c.	Corporation	S. E. Burgess, Borough Engineer, Chapter Row, South Shields.
„ 24	Etherley—Alterations &c., to Chapel		F. H. Livesay, Architect, Bishop Auckland.
„ 24	Cobham, near Gravesend—Mortuary, Coach House, &c.	Stroud Rural District Council	G. E. Bond, Architect. Pier Chambers, Chatham.
„ 25	Rainhill—W.C. Block	Lancs Asylums Board	J. Gornall, Clerk, Rainhill Asylum.
„ 25	Bristol—Repairs, &c.	Municipal Charities Trustees	Foster & Wood, 35 Park Street, Bristol.
„ 25	Brynnan, Wales—School	Llanharran Urban District School Board.	L. V. Evans, Court House, Pencoed.
„ 25	Chelmsford—Laboratories, &c.	Essex County Council	F. Whitmore, County Architect, Duke Street, Chelmsford.
„ 27	Burton-on-Trent—Turkish Bath	Corporation	G. T. Lynam, Borough Engineer, Town Hall, Burton-on-Trent.
„ 27	Thornaby-on-Tees—Police Station, &c.	North Riding County Council	W. H. Brierley, 13 Lendal, York.
„ 27	Wallsend—School Extension	School Board	Clerk, Board's Offices, Bewicke Schools, Willington Quay.
„ 29	Derby—School	School Board	A. Macpherson, Architect, Tenant Street, Derby.
„ 30	Wesham, Lancs—Workhouse and Offices	Fylde Union Guardians	Haywood & Harrison, Accrington.
Oct. 7	Acton, W.—Refuse Destructor	District Council	D. J. Ebbetts, 242 High Street, Acton, W.
„ 7	London, S.E.—Cartshed, Bothy, &c.	London County Council	General Section, Architect's Department, 18 Pall Mall East, S.W.
No date	Derby—Extension of Ironworks	Ley's Malleable Castings Co., Ltd.	E. E. Ridgway, Architect, Long Eaton, Notts.
	ENGINEERING:		
Sept. 18	Reading—Tramways Materials	Corporation	J. Bowen & I. E. Winslow, Town Hall, Reading.
„ 18	King's Norton, Birmingham—Electric Lighting Lease	Urban District Council	A. W. Cross, 23 Valentine Road, King's Norton.
„ 18	Kinsale, Ireland—Water Supply Works, &c.	Guardians	R. Evans, 53 South Mall, Cork.
„ 18	Howden, Yorks—Gas Lighting	Parish Council	J. G. Moore, Clerk, Council Offices, Bridgegate, Howden.
„ 19	Swadlincote—Wrought-iron Roof, Boilers, Engine, Govenors and Meter.	Urban District Council	G. B. Smedley, General Manager, Gas Works, Swadlincote, Burton-on-Trent.
„ 19	Swindon—Lighting Switchboard	Corporation	Lacy, Clirehugh & Sillar, 2 Queen Ann's Gate, Westminster.
„ 19	Aston Manor, Birmingham—Coal Bunkers and Conveyor	Urban District Council	R. P. Wilson, 66 Victoria Street, Westminster.
„ 19	Sherburn, Yorks—Water Supply	Rural District Council	F. H. Read, 26A Dean Street, Scarborough.
„ 21	Duinbergen, Belgium—Three Piers on Beach		Rue des Augustins, No. 15, Brussels.
„ 24	Kingston-upon-Hull—Two Steel Girder Railway Bridges	North-Eastern Railway Co.	T. M. Newell, Engineer, Dock Office, Hull.
„ 24	Southampton—Fire Engine, Escape, &c.	Corporation	Superintendent Johnson, Municipal Offices, Southampton.
„ 24	Bury, Lancs—Tramways	Tramways Committee	A. W. Bradley, Borough Engineer, Corporation Offices, Bury.
„ 24	Middlesbrough—Reconstruction of Wharf	North-Eastern Railway Co.	T. M. Newell, Engineer, Dock Office, Hull.
„ 24	Wigan—Engine Shed, &c., and Widening Bridge	Lancs & Yorks Rly Co.	Engineer, Hunt's Bank, Manchester.
„ 24	Dundee—Carbons for Electric Lamps	Gas Commissioners	W. H. Tittensor, City Elec. Engr., Dunhope Crescent Rd., Dundee.
„ 24	Dungannon, Ireland—Electrical Plant, &c.	Urban District Council	J. M. Hamilton, Clerk, Dungannon.
„ 24	Dundee—Steam Plant	Gas Commissioners	W. H. Tittensor, City Elec. Engr., Dunhope Crescent Rd., Dundee.
„ 24	London, S.E.—Heating Apparatus, &c.	Metropolitan Asylums Board	T. D. Mann, Clerk, Board's Offices, Embankment, E.C.
„ 24	Middleton Junction—Bridges, Retaining Walls, &c.	Lancs & Yorks Rly. Co.	Engineer, Hunt's Bank, Manchester.
„ 25	Ashford, Middlesex—Electric Lighting	West London School Dist Mgrs.	T. J. Digby, 32 Shaftesbury Avenue, W.
„ 25	Ballyshannon, Ireland—Railway Extension	Donegal Railway Co.	A. M'C. Stewart, 8 Shipquay Street, Londonderry.
„ 27	Burton-on-Trent—Turkish Bath	Corporation	T. Lynam, Borough Engineer, Town Hall, Burton-on-Trent.
„ 27	Southport—Footbridge and Piling	Corporation	R. P. Hirst, Borough Engineer, Town Hall, Southport.
„ 29	Vigo and Bayona, Spain—Electric Tramway		Office of the Ministry of Agriculture, Commerce and Public Works, Madrid.
„ 30	Port Adelaide, South Australia—Harbour		Agent-General for South Australia, 1 Crosby Square, London.
„ 30	Burton-on-Trent—Electric Mains, &c.	Corporation	Kincaid, Waller & Manville, 29 Great George Street, Westminster.
„ 30	Burythorpe, York—Water Supply		J. H. Preston, Burythorpe House, York.
Oct. 2	Kinsale, Ireland—Waterworks	Rural District Council	R. Evans, 53 South Mall, Cork.
„ 6	Farnborough—Sewerage and Sewage Disposal Works	Urban District Council	J. E. Hargreaves, Engineer, Town Hall, Farnborough, Hants.
„ 7	Lowestoft—Timber Pier		W. Jaffrey, 3 Victoria Street, Westminster, S.W.
„ 7	Honeybourne and Toddington—Railway	Great Western Railway Co.	Engineer, Paddington Station, W.
„ 7	Newcastle-on-Tyne—Electrification of Line	Directors, N.E.R.	Wilson Worsdell, N.E.R., Gateshead-on-Tyne.
„ 7	London, W.—Refuse Destructor	Acton District Council	D. J. Ebbetts, 242 High Street, Acton, W.
„ 15	Liscard, Cheshire—Boring	Wallasey U.D.C.	J. H. Crowther, Engineer, Great Float, near Birkenhead.
„ 16	Bootle, Cumberland—Waterworks	Rural District Council	R. Pickering, 11 Lowther Street, Whitehaven.
„ 20	Bury, Lancs—Waterworks	Joint Water Board	J. Cartwright, Civil Engineer, Peel Chambers, Bury.
Nov. 14	St. Petersburg—Electric Traction on Tram Lines	Stadt Amt (Town Council)	Stadt Amt, St. Petersburg, Russia.
„ 30	Shanghai—Electric Lighting	British Municipal Councils	Office of the Board of Trade, 50 Parliament Street, S.W.
Dec. 13	Madrid—Canal Reservoir		Office of the Ministry of Agriculture, Commerce and Public Works, Madrid.
	FURNITURE:		
Sept. 23	East Ham—Furniture	Urban District Council	A. H. Campbell, Surveyor, Public Offices, Wakefield St., East Ham
„ 23	Leeds—Furniture and Fittings for Police Station & Library		Bedford & Kitson, Architects, Greek Street Chambers, Leeds.
	IRON AND STEEL:		
Sept. 18	Hastings—Wrought-iron Fencing	Corporation	P. H. Palmer, Borough Engineer, Town Hall, Hastings.
„ 20	Leigh, Lancs—Pipes	Gas and Water Committee	J. Foster, Engineer, Gas and Waterworks Offices, Leigh.
„ 24	Pentre, Glamorgan—Iron Pipes, Gas, Lead & Compo Pipes, &c.	Rhondda Urban District Council	O. Thomas, Engr., Gas & Water Offices, Pentre, R.S.O., Glamorgan.
„ 24	Street, Somerset—Cast-iron Pipes	Urban District Council	A. P. I. Cotterill, 28 Baldwin Street, Bristol.
„ 24	London, N.—Entrance Gates, &c.	Metropolitan Asylums Board	T. D. Mann, Clerk, Board's Offices, Embankment, E.C.
„ 24	Dublin—Rails, &c.	Dublin, Wicklow & Wexford Railway Co.	M. F. Keogh, Secretary, Westland Row Station, Dublin.
„ 24	South Shields—Castings, Nails, Axles, &c.	Corporation	S. E. Burgess, Borough Engineer, Chapter Row, South Shields.
„ 28	Menston—Iron and Steel, &c.		Clerk, Asylum Committee, County Hall, Wakefield.
„ 30	Copenhagen—Railway Stores	Danish State Railways	Construction of the State Railways, 10 Reventlowsgade, Copenhagen.
Oct. 2	London, S.W.—Railway Stores	Secretary of State for India	Director-General of Stores, India Office, Whitehall, S.W.
„ 9	London, S.W.—Chains and Springs	Southern Mahratta Rly. Co., Ltd.	E. Z. Thornton, 46 Queen Anne's Gate, Westminster, S.W.

COMPLETE LIST OF CONTRACTS OPEN—*continued.*

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDERS MAY BE OBTAINED.
	PAINTING AND PLUMBING:		
Sept. 18	Hull—Painting, &c., at Barracks		Orderly Room, Londesborough Barracks, Hull.
" 22	Guildford—Paintwork	Town Council	C. G. Mason, Borough Surveyor, Tuns Gate, Guildford.
" 22	Huddersfield—Painting at Deanhouse Workhouse	Guardians	E. A. Rigby, Clerk, Union Offices, Ramsden Street, Huddersfield.
" 22	Huddersfield—Painting at Crosland Moor Workhouse	Guardians	E. A. Rigby, Clerk, Union Offices, Ramsden Street, Huddersfield.
" 24	South Shields—Paints, Oils, &c.	Corporation	S. E. Burgess, Borough Engineer, Chapter Row, South Shields.
" 25	Bristol—Painting and Cleaning Schools, &c.	Municipal Charities Trustees	Foster & Wood, 35 Park Street, Bristol.
" 27	Spezia—Red Lead	Director-General of Italian Royal Arsenal.	Commercial Intelligence Branch of the Board of Trade, 50 Parliament Street, London, S.W.
	ROADS AND CARTAGE:		
Sept. 18	Liskeard, Cornwall - Steam Rolling	Rural District Council	A. C. L. Glubb, Clerk, Liskeard.
" 18	Kingsbridge, Devon—Digging and Cleaning Ditches, &c.	Rural District Council	J. Balkwill, Surveyor, Fox Hall, Kingsbridge.
" 18	North Shields—Paving, &c.	Rural District Council	A. S. Dinning, 21 Ellison Place, Newcastle-upon-Tyne.
" 19	Chorlton-cum-Hardy, Lancs—Road Works	Withington U.D.C.	A. H. Mountain, Surveyor, Town Hall, West Didsbury.
" 20	Andover—Steam Rolling	Town Council	T. E. Longman, Town Clerk, Andover.
" 20	Harrow—Granite, &c.	Urban District Council	J. P. Bennetts, Surveyor, Council Offices, Harrow.
" 20	Horton, Epsom—Tar Paving	London County Council	R. W. Partridge, 6 Waterloo Place, S.W.
" 20	Tamworth—Granite	Rural District Council	H. J. Clarson, 22 Church Street, Wandsworth.
" 22	Tonbridge, Kent—Slop-van and Cart	Urban District Council	A. H. Neve, jun., Clerk, Council Offices, Tonbridge Castle, Kent.
" 22	Andover—Kerbing, Paving, &c.	Town Council	Borough Surveyor, Town Hall, Andover.
" 22	Heaton Norris—Street Works	Urban District Council	W. Banks, Surveyor, Council Surveyor, Heaton Moor.
" 22	Pentre, Glamorgan—Scavenging	Rhondda U.D.C.	W. J. Jones, Engineer, Council Offices, Pentre, R.S.O., Glam.
" 22	Tipton, Staffs—Road Works	Urban District Council	W. H. Jukes, Surveyor, Public Offices, Owen Street, Tipton.
" 22	Withington, Lancs—Tar Paving	Urban District Council	A. H. Mountain, Surveyor, Town Hall, West Didsbury.
" 22	Guildford—Granite	Town Council	C. G. Mason, Borough Surveyor, Tuns Gate, Guildford.
" 24	South Shields—Granite, Flags, &c.	Corporation	S. E. Burgess, Borough Engineer, Chapter Row, South Shields
" 24	London, N.—Asphalt Paving, &c.	Wood Green U.D.C.	C. J. Gunyon, Surveyor, Town Hall, Wood Green, N.
" 24	London, N.—Road Works	Wood Green U.D.C.	C. J. Gunyon, Surveyor, Town Hall, Wood Green, N.
" 24	London, N.—Weighbridge Foundation and Road Paving	Metropolitan Asylums Board	T. D. Mann Clerk, Board's Offices, Embankment, E.C.
" 25	Salisbury—Roads	Rt. Hon. the Earl of Pembroke	Lemon & Blizzard, 38 Silver Street, Salisbury.
" 29	Witham, Essex—Granite	Urban District Council	W. B. Blood, Clerk, Witham, Essex.
" 30	Carshalton—Materials, Steam Roller, &c.	Urban District Council	W. W. Gale, Surveyor, High Street, Carshalton.
" 30	London, N.—Making-up Roads	Tottenham U.D.C.	W. H. Prescott, 712 High Road, Tottenham.
Oct. 4	Heswell, Cheshire—Road Construction	Wirral R.D.C.	T. Davies, 33 Kingsland Road, Birkenhead.
	SANITARY:		
Sept. 18	Bradford—Lime	Gas Committee	Town Clerk, Bradford.
" 20	Burnley—Sewerage Works	Rural District Council	S. Edmondson, 18 Nicholas Street, Burnley.
" 22	London, W.—Barging away Dust, Slop and Manure	Kensington Royal Boro' Council	W. Weaver, Boro' Surveyor, Town Hall, Kensington High St., W
" 22	Epping, Essex - Sewers	Urban District Council	Surveyor, Epping.
" 22	Guildford—Scavenging	Town Council	C. G. Mason, Borough Surveyor, Tuns Gate Guildford.
" 22	Walsall—Sewer	Corporation	Borough Surveyor, Bridge Street, Walsall.
" 24	Knaresborough—Sewers, &c.	Urban District Council	S. Turner, Surveyor, Council Offices, Knaresborough.
" 24	South Shields—Pipes, Disinfectants, Brooms, &c.	Corporation	S. E. Burgess Borough Engineer, Chapter Row, South Shields.
" 26	West Hartlepool—Sewer	Corporation	J. W. Brown, Borough Engineer, West Hartlepool.
" 29	Uttoxeter—Sewerage Works	Urban District Council	Willcox & Raikes, Engineers, Union Chambers, 63 Temple Row Birmingham.
" 30	Runcorn—Scavenging	Rural District Council	G. F. Ashton, 71 High Street, Runcorn.
Oct. 6	Farnborough—Sewerage and Sewage-Disposal Works	Urban District Council	J. E. Hargreaves, Engineer, Town Hall, Farnborough, Hants.
Dec. 15	Monte Video—Sanitary Works	Government of Uraguay	Uraguay Legation, London.

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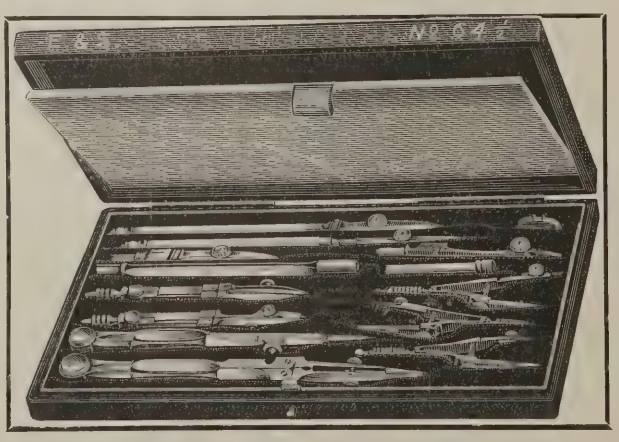
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DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDERS MAY BE OBTAINED.
	TIMBER:		
Sept. 18	Cardiff—Fencing	Corporation	W. Harpur, Borough Engineer, Cardiff.
,, 21	South Shields—Timber	Corporation	S. E. Burgess, Borough Engineer, Chapter Row, South Shields.
,, 23	Willesden, N.W. Oak Fence and Gates	District Council	O. C. Robson, Engineer, Public Offices, Dyne Road, Kilburn, N.W.
,, 27	Spezia—Yellow Pine-wood	Director-General of the Italian Royal Arsenal.	Commercial Department of the Board of Trade, 50 Parliament Street, London, S.W.
,, 29	London—Red Fir Telegraph Poles	General Post Office	S. C. Hooley, Controller of Stores, General Post Office, E.C.

COMPETITIONS OPEN.

DATE OF DELIVERY.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Sept. 23	London, N.—Municipal Buildings, Fire Station, Baths, &c..	£200, £100, £50.	W. H. Prescott, Engineer, U.D.C. Offices, Tottenham.
,, 29	Bideford—Municipal Offices and Public Library	£30, £15, £10.	W. B. Seldon, Town Clerk, 18 The Quay, Bideford.
Oct. 1	Maidenhead—Free Library	£50, £20, £10.	John Kick, Town Clerk, Guildhall, Maidenhead.
,, 9	Greenwich—Public Library	£50, £30.	F. Robinson, Town Clerk, Town Hall, Greenwich.
,, 14	Newark—Alterations and Additions to Infirmary	£21.	Mr. H. Colton, Clerk to Guardians, 27 Lombard Street, Newark.
,, 15	Strood—Infectious Diseases Hospital	£15 15s.	J. E. Povey, Clerk, Strood Union, Rochester.
Nov. 1	Allahabad—Memorial to Queen Victoria	2,000 Rs.	H. N. Wright, Indian Civil Service, Allahabad, India.
Jan. 31	Cape Town—University Buildings	£400. £200, £100.	Agent-General for the Cape of Good Hope, London.
No date	Ramsgate—Technical Schools and Free Library	£50, £25, £15.	T. G. Taylor, Borough Surveyor, Albion House, Ramsgate.

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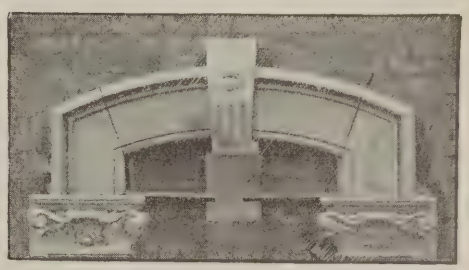
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Hay, best	do.	4	15	0	5	5	0
Sainfoin mixture	do.	4	10	0	5	5	0
Straw	do.	1	16	0	2	8	0

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Castor Oil, French	per cwt.	1	5	9		—	
Colza Oil, English	do.	1	6	6		—	
Copperas	per ton	2	0	0		—	
Lard Oil	per cwt.	2	13	0	2	14	0
Lead, white, ground, carbonate	do.	1	4	10		—	
Do. red	do.	1	0	4½			
Linseed Oil, barrels	do.	1	9	6		—	
Petroleum, American	per gal.	0	0	5⅜	0	0	5⅞
Do. Russian	do.	0	0	5¼	6	0	5½
Pitch	per barrel	0	7	0			
Shellac, orange	per cwt	5	4	0		—	
Soda, crystals	per ton	3	2	6	3	5	0
Tallow, Home Melt	per cwt.	1	8	3	1	10	0
Tar, Stockholm	per barrel	1	1	6		—	
Turpentine	per cwt.	1	13	9		—	

METALS.

Copper, sheet, strong	per ton	69	0	0		—	
Iron, Staffs., bar	do.	6	12	6	8	10	0
Do. Galvanised Corrugated sheet	do.	11	5	0	11	10	0
Lead, pig, Soft Foreign	do.	11	0	0		—	
Do. do. English common brands	do.	11	3	9		—	
Do. sheet, English 3lb. per sq. ft. and upwards	do.	13	10	0			
Do. pipe	do.	14	0	0		—	
Nails, cut clasp, 3in. to 6in.	do.	9	5	0		—	
Do. floor brads	do.	9	0	0		—	
Steel, Staffs., Girders and Angles	do.	5	15	0	6	5	0
Do. do. Mild bars	do.	6	10	0	7	0	0
Tin, Foreign	do.	123	10	0	124	0	0
Do. English ingots	do.	123	0	0	123	10	0
Zinc, sheets, Silesian	do.	24	0	0		—	
Do. do. Vieille Montaigne	do.	24	0	0		—	
Do. Spelter	do.	19	6	3	19	2	6

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Fir, Dantzic and Memel	per load	1	13	0	3	0	0
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Do. Pitch	do.	2	14	0	3	1	0
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Do. Petersburg	per bundle	0	0	8		—	

		£	s.	d.	£	s.	d.
Deals, Archangel 2nd & 1st	per P.Std.	16	15	0	24	15	0
Do. do. 4th & 3rd	do.	9	0	0	15	15	0
Do. do. unsorted	do.	5	12	6	6	10	0
Do. Riga	do.	6	15	0	12	10	0
Do. Petersburg 1st Yellow	do.	16	5	0	—		
Do. do. 2nd „	do.	9	0	0	12	10	0

Coming Events.

Wednesday, Sept. 17.

BUILDERS' FOREMEN AND CLERKS OF WORKS' INSTITUTION.—Ordinary Meeting at 8 p.m.

Saturday, Sept. 20.

NORTHERN ARCHITECTURAL ASSOCIATION.—Visit to Newcastle.

Tuesday, Sept. 23.

NATIONAL ASSOCIATION OF MASTER HOUSE PAINTERS AND DECORATORS OF ENGLAND AND WALES.—Annual Convention at Newcastle-on-Tyne. (First Day). Mr. J. D. Crace opens the Exhibition, 11.20 a.m. Presidential address by Mr. J. Graham Cole at 12 a.m. Business meeting in Upper Hall, Grand Assembly Rooms, Barras Bridge, at 2.30. Mr. J. Gaskill on "Some Modern Developments of the Decorator's Business," Mr. Sam Moss on "Local Associations," and Mr. J. Higson on "Some Aspects of Sub-Contracting," 7.30 p.m.

Wednesday, Sept. 24.

NATIONAL ASSOCIATION OF MASTER HOUSE PAINTERS AND DECORATORS OF ENGLAND AND WALES.—(Second Day). Mr. R. G. Hatton on "The Training of the Apprentice in Drawing, Design and Colouring," 9.30 a.m. Mr. Lewis F. Day on "The Art and Trade of the House-Painter," 11 a.m. Mr. F. Grundy on "Should Arbitration in Trade Disputes be made Compulsory," and Mr. G. Tawse on "Fifty Working Years of a Painter's Life, and the Men I have Met," 3 p.m. Annual meeting and election of officers at 4.30 p.m. Reception by the President at 7.30 p.m.

NAIL MANUFACTURERS.—Conference and Dinner at the Trocadero at 3 p.m.

Thursday, Sept. 25.

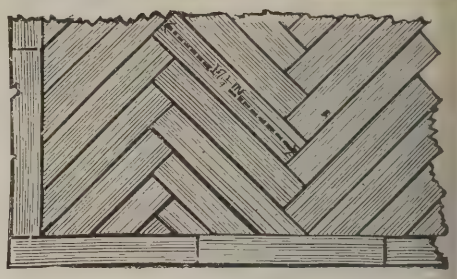
NATIONAL ASSOCIATION OF MASTER HOUSE PAINTERS AND DECORATORS OF ENGLAND AND WALES.—(Third Day). Annual Excursion to Raby Castle, and Annual Dinner.

Friday, Sept. 26.

NATIONAL ASSOCIATION OF MASTER HOUSE PAINTERS AND DECORATORS OF ENGLAND AND WALES.—(Fourth and last Day).

SANITARY INSTITUTE (Lectures and Demonstrations for Sanitary Officers, Part I.).—Mr. E. J. Steegmann, M.B., on "Mechanical Physics," 7 p.m.

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Sep. 24, 1902. No. 398.

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An Architectural Causerie.

The Albert Memorial.

The colouring of the mosaics of the Albert Memorial has always been the most pleasing feature of that gilded bird-cage, apart from the sculpture groups arranged around the base. These mosaics, however, are now being renovated, as well as the Memorial itself; and it is expected that £8,000 will be spent on the work. A necessity no doubt: but one thinks what might be done with even £8,000 in the hands of a really capable architect. Sir Gilbert Scott's design is doubtless admired by nine out of every ten visitors, and as one has become accustomed to the repetition of such misdirected admiration in the daily press, it is somewhat alarming to see the Memorial so severely criticised by the "Daily News." The writer has little respect for "the mean gilded ironwork" which "represents almost the nadir of British architecture": and thinks that the late Prince Consort's memory was never more unfortunately served than by the erection of "a fragment of railway station in Kensington Gardens." Scott was the author of many enormities, but such criticism as this is extravagant and unjust. It may, however, tend to dispel in some measure the popular appreciation of an undeserving work.

A Small Priory Church.

The illustration on this page shows the interior and a small sketch plan of a priory church designed by Mr. Charles H. M. Mileham and proposed to be erected for a religious community in a large town. It is intended that the walls shall be built of concrete with rough-cast external face, and as far as means will allow the interior will be faced with stone and paved with hardwood and marble; vaulted in concrete and covered with pantile roofs. The drawing was exhibited in this year's Royal Academy Exhibition.

The Apotheosis of Soot.

Buildings are not intended to be left to themselves and the elements: they cannot last for ever, but it is the duty of those who have charge of them to check the action of time by constant and intelligent supervision. This may seem trite, but it is nevertheless a truth which is rarely observed; for the common practice is to allow buildings to go to rack and ruin and then to "restore" them. With domestic houses, sufficiently looked after at least by legal covenants, we are not now concerned; it is public buildings to which we refer, and more especially public buildings in London.



As one example out of scores, take the Houses of Parliament. At the present moment the sheltered carvings and other embellishments on the outside of the building are clogged with dust and dirt; the English rose, which the carver chiselled so carefully, is encased with sooty particles which, in the hollows, collect into blotches. There may be those among artists who prefer the carvings in this condition, and these same persons would perhaps also admire a piece of mildewed cheese. For our own part we have no liking for soot or mildew, and Mr. Mortimer Menpes's contention (made in his "World Pictures") that "London by rights should be placed in the hands of the poet and the artist" hardly appeals to us. Mr. Menpes would have us "imagine rose-red, brilliant white, and palest-green houses seen through a silver-grey mist," but past experience would incline us to conjure up a vision of soot-encrusted houses seen through a sickly fog. But what we are now concerned about is no question of taste nor of expediency; it is one of sober necessity. If it were the intention to let the Houses of Parliament rot away as they will, then we could find no reason for urging the removal of all the dirt and soot on them; but as this is not the fact—everyone being desirous of preserving Barry's work as best may be—then why in the name of common-sense is all this filth allowed to collect on the stone, eating away its decoration and gnawing into its very heart? Would it not be better if the building had been swept down every year, or at least such parts of it as are within easy reach—there are soot-clogged carvings not much above the helmets of the policemen who walk past them, policemen who guard the national and civic interests; but there is no such constant watchman over the buildings themselves, else we should not have to deplore all these soiled enrichments. It were better, we say, if the buildings—and, indeed, all such buildings in a city like London—were swept

down at regular intervals; the soot and dirt of a year is a comparatively thin deposit which might easily be removed, but, when it is allowed to remain, the second year's deposit comes and the third, and so on till the whole stone is fouled and its surface crumbled into shapelessness. Now, of restorationists we have had enough. But there would be little work for them to do if better care were taken of our buildings, and first among many duties—first because most direct—is this of removing the dirt of a smoky atmosphere. The stain of time is one thing, rather it is a lovely colour that men cannot give to their work; but the foulness of soot is another, a thing to abhor rather than to admire. Maybe, with the advent of the air-ship the practice we advocate will become common, so that it will be no strange sight to see a band of workmen brushing the sides of a great building as they slowly encircle it in their heavenly craft. There is, however, no need to wait till every firm of decorators has its air-ship; there are brushes enough now and men enough to use them if only those in authority would give up this apotheosis of soot and have the filth swept away.

Metal Sheets for Decoration. It is an increasing custom in America to cover the fronts of houses with metal sheets stamped to represent stone and brickwork. We had occasion some time ago to refer to this baneful custom, but now we find the "South Wales Daily News" advocating its adoption here, or at least advocating the use of stamped metal sheets for internal decoration; and only a few weeks ago Sir John Jones Jenkins at the annual meeting of the Swansea Royal Metal Exchange referred to this trade as one which might enable Welsh tinplate manufacturers to make up in some measure for the orders that have gone across the Atlantic. So popular have these sheets become in America that distinct new classes of workmen have sprung up, under the names of metal ceiling hangers and painters. If they are found suitable and economical, there is no reason why our walls should not be covered with sheets of metal as with sheets of paper, but it is to be regretted that the manufacturers of these metal sheets abuse their material so much and produce designs of such atrocious character: and, moreover, that instead of dealing honestly with the metal, they should try to make it look what it is not. An American trade paper of repute says: "It is to the credit of the manufacturers in this line that they are educating the public taste by the exceptionally handsome and artistic designs in which they are offering their products." We have seen some of these designs and they are about equal to the stampings on cheap tea-pots. And there's the pity of it, because they at once become prejudiced in the eyes of persons of taste and a deep injury is done to what might be honest and reputable goods.

Sonning Bridges. — Commissioned by "Country Life," Mr. E. L. Lutyens has prepared some suggested designs for the rebuilding on the Sonning bridges. Oak is employed with stout piles. The designs are published in this week's issue of the paper.

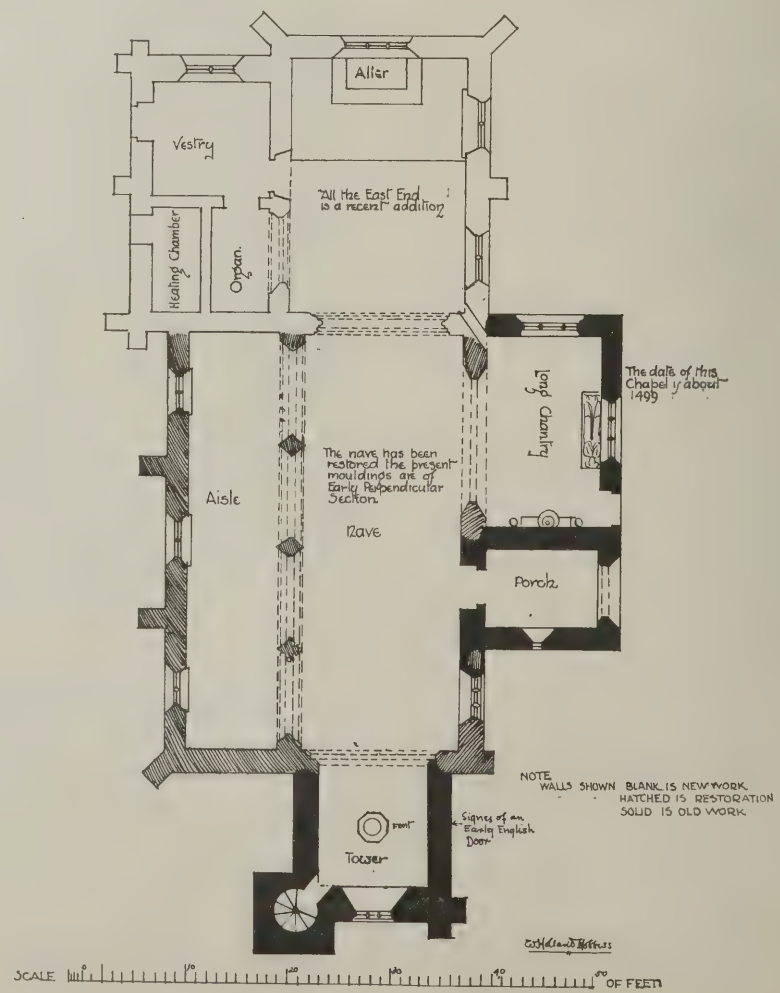
A TOUR IN SOMERSETSHIRE AND WILTS.

By W. HOLLAND HOBBISS.

ALMOST due west of Bath for a distance of six miles into Wiltshire we cycled until we reached South Wraxall. It is summed up in a church, an inn, a post-office, a farmhouse or two, and some straggling cottages; but to the architectural student, especially one with an artistic temperament, every building abounds with interest; and they are all so appropriate that one could almost fancy they had sprung up with the hedge-rows and grown to ordered maturity with the trees. Nor is South Wraxall in any sense unique, for wherever we went in Somerset or Wilts we saw the same quiet irregular street, with its grey lichen-covered houses breathing the very spirit of the simple country life; the square church tower, almost invariably of Perpendicular date, with the tombs of the gentry and the chantry of the lord of the manor, a screen and often a well-carved wooden roof.

The church at South Wraxall, as seen from the road, is dominated by its tower (see accompanying illustration), which has evidently been frequently restored. The lower storey shows signs of Early English work, but the saddle-back roof, the cornice and the buttress are of course much later, perhaps as late as the seventeenth century. The plan of the church is one common to the district, with a single aisle on the north side and the porch and chantry on the south. The Long chantry chapel was originally founded by the lord of the manor in 1499. It contains one tomb of about that date, supposed to be that of the widow of the founder. The church has been much restored—the chancel is in fact quite new, and where the modern mason has laid his hand here the "glory has effectually departed."

About two miles from South Wraxall is Chalfield manor-house (the country folk call it "Charfield"). Crossing the moat which surrounds it we entered the original courtyard, now a well-kept lawn. The building itself, which dates from the sixteenth century, stands on the site of a much older erection. There still can be traced the outer walls of a defensive house, and the moat undoubtedly belonged to the older building. The antiquarian would find a store of very interesting data, upon which he could determine the plan of the old building. What remains of the present manor-house has been very much altered to suit modern requirements. Some parts of it have been pulled down; for instance, I was surprised to find that the rooms behind the left wing had been removed, leaving only the front wall standing. The buildings on the western side of the court still remain and are used for what they were probably intended, namely, stables and rooms for servants, while beyond these again has been built a farmyard, of which a great stone barn is well worth seeing. The east side has been removed with the exception of the chapel, which, although an isolated building, I have little doubt was formerly the family chapel. Its position on plan indicates it as being such, and the period corresponds with the house, except that it is naturally more ecclesiastical in character, but the carving and the window tracery are similar in both. A stone screen, very beautiful in detail and carved with the arms of the family, with indications of colour decoration, still remains as part of the older period. An aisle was added in the eighteenth century, and the



PLAN OF SOUTH WRAXALL CHURCH.

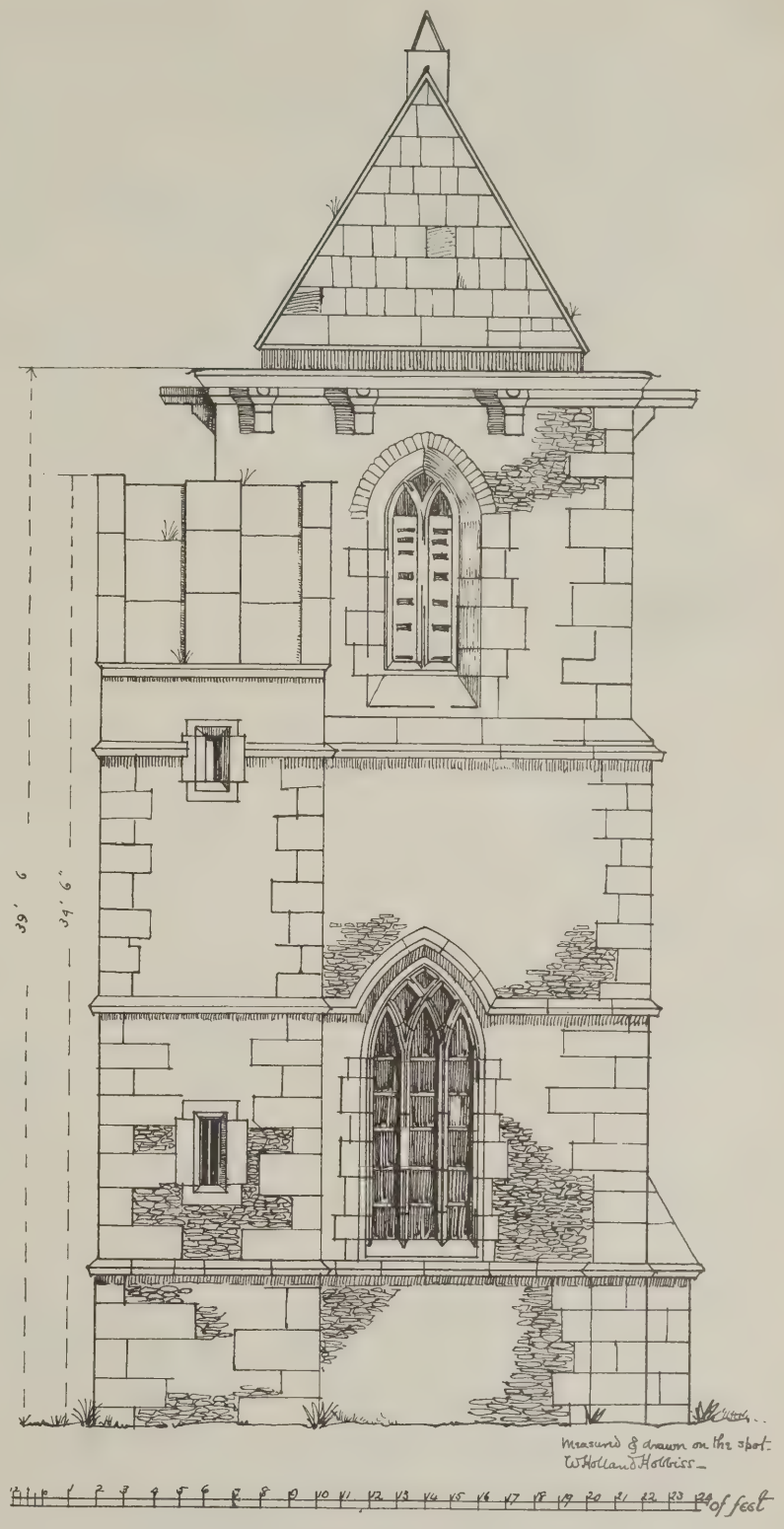
pews and pulpit (see p. 91) are of about the same date; this I presume was done when the lords of the manor abandoned the residence, the house itself then being turned into a farm and the chapel into the parish church. Turning again to the house and examining the detail, I was much struck with the Italian influence which, as Mr. Gotch says, was struggling with the Gothic tradition of the time. Although the manor has been built entirely in accordance with the English traditions, with pointed window-and door-heads, yet in its detail the foreign influence crept in. There is an attempt at symmetry in the disposition of windows, and the gables balance one another (see sketch on p. 96). The soffit of the oriel window has been scalloped in the Italian manner, although the English mason could not refrain from introducing a trefoil. The statues on the finials and elsewhere are full of movement.

Bradford-on-Avon was our next place of pilgrimage. There are some places which one instinctively feels to be very old—their position, their people and their streets all bear the mark of old-time history. Such a place is Bradford-on-Avon, with its crooked, narrow, steep little streets, its bridge, its churches, its mills and its old-fashioned wharves. One ot the few remaining Saxon churches is to be seen here, very much patched, but sufficiently good for the purpose of study.

The later Bradford Church is somewhat big and, like the churches of this district, mostly of Perpendicular date, but it has suffered from over-restoration. There is a Norman window in the chancel, and also a fragment of a Crusader's tomb that gives a clue to its early date. The plan of the church is similar to that of South Wraxall, *i.e.*, a single aisle on the north, a porch and a chantry chapel on the south, and a tower at the west end. The timber roof is the most interesting feature in the building; the chancel roof is the original work, that over the nave being a restoration.

The boast of Bradford is its tithe barn. This building, which as an old countryman informed me, "is the second gurtest in England, surr," stands in a farmyard a little way out of Bradford. It is built of local stone with a light-pitched stone-tile roof, and has two entrances. The original trusses still remain, and the place has not changed since the old monks of the neighbouring monastery collected fat tithes from the farms and manors of that rich country-side in the thirteenth, fourteenth and fifteenth centuries.

After having seen all there was to see in Bradford-on-Avon we set off for a village called Westwood, about a mile and a half away. This village is divided into two parts, called Upper and Lower Westwood. In Upper Westwood we found an eighteenth-century house, or rather a seventeenth-century house with an eighteenth-century facing (see illustrations on pp. 92 and 93). It was originally a manor, with the stables a short distance from the house. The back has a very different appearance to the front, comprising three gables with a long mullioned window. Inside there is a rather pleasing staircase. The measured drawing of it on p. 95 is sufficiently explicit, and I need only say that the work is very quiet and refined; perhaps a little severe, and more adapted for the town than the country. Work of a similar character is to be seen at a village called Freshford, about a mile and a half up the valley. The walk from Westwood is one of the most charming in the Western counties. Upon one side rises a wood, and upon the other a bank of pasture land, and between these two banks there is a sweep of level land. Probably in some prehistoric ages it was the bed of a mighty river or glacier, but now all that remains is a quiet little stream, shaded by weeping willows and covered with beds of water-lilies, where here and there in the depths a big pike may be seen slowly moving,

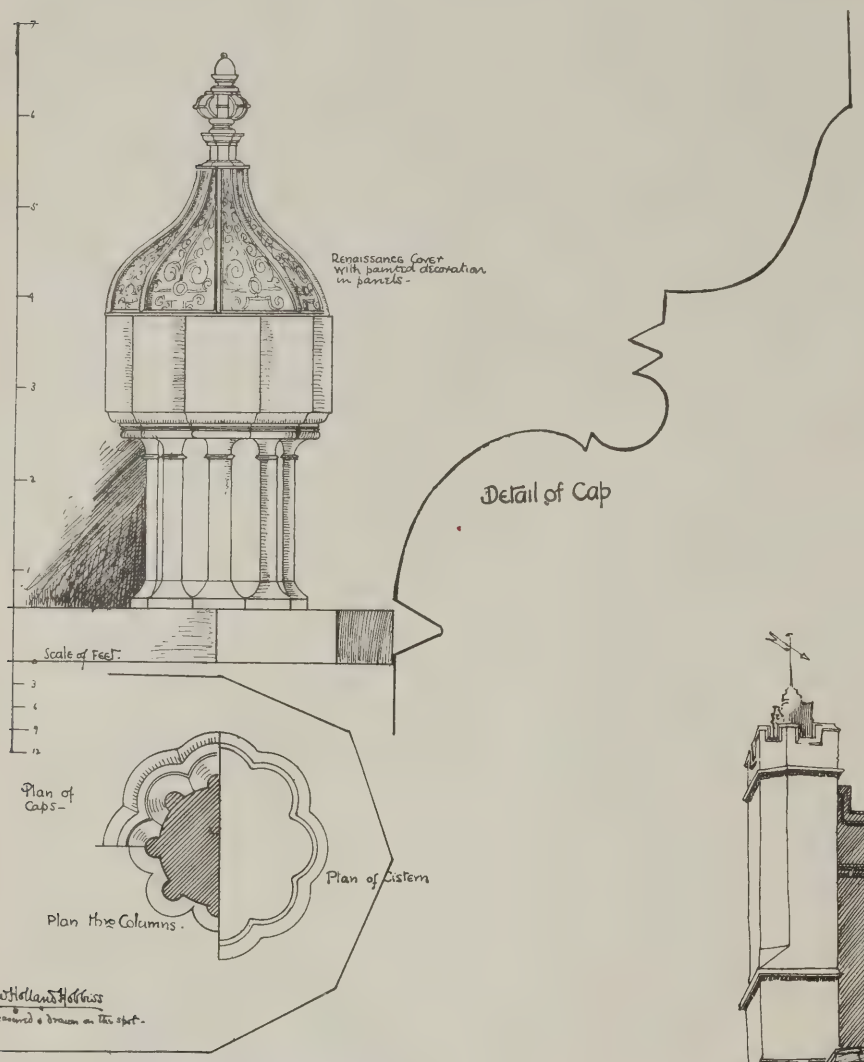


TOWER OF SOUTH WRAXALL CHURCH.

the shallows and pools being alive with smaller fish.

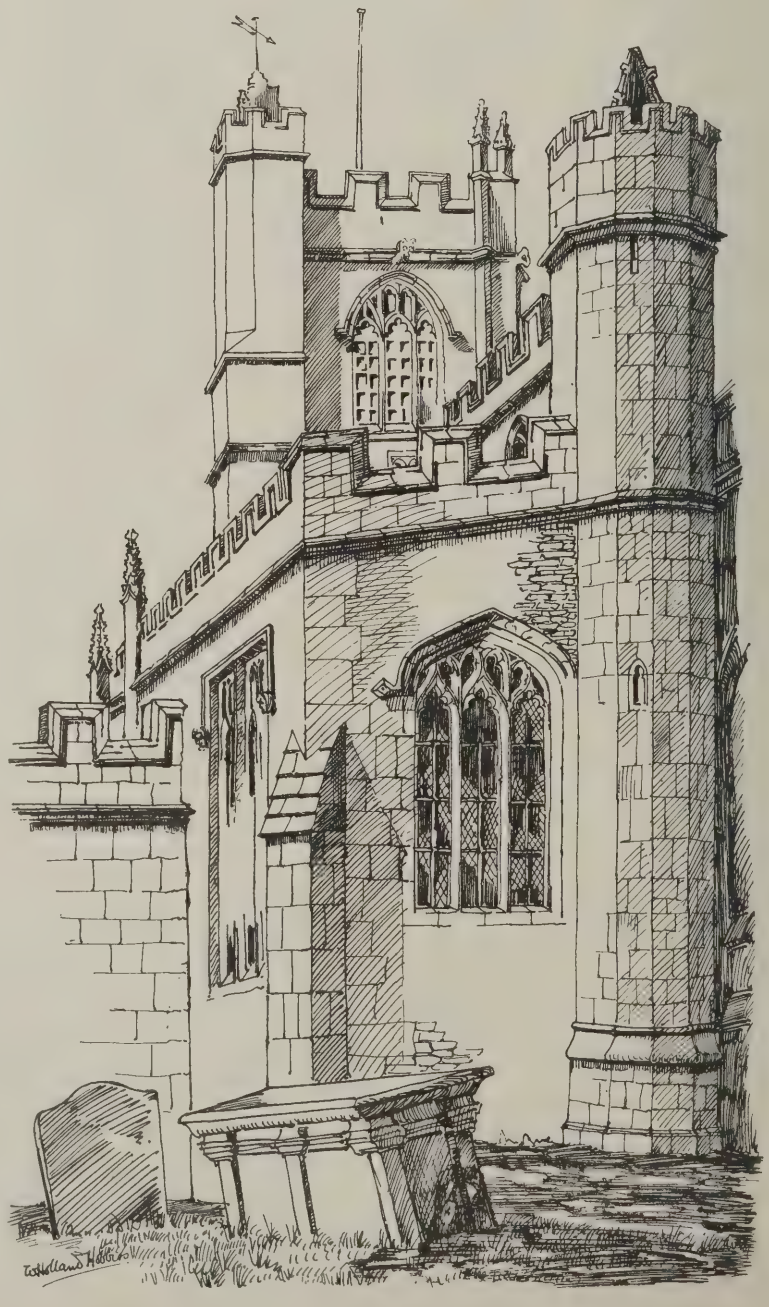
Lower Westwood, architecturally speaking, has its attractions. There is a row of cottages worth studying. The manor-house (see sketch on p. 91), like many similar buildings in this part of the country, has been much altered, but still retains a great deal of interesting seventeenth-century work. A plastered ceiling in what is called the banqueting-room is an excellent subject for a measured drawing. As regards the village church, the tower is the best part of it, but inside the student will notice some rather interesting tombs showing signs of colour-work: beyond this, however, the building is of little valu to an architect.

From Westwood we journeyed through Hinton and so to Wellow. The cottages and walls here are all in good repair and the hedges are neatly trimmed. The church stands upon the highest piece of ground in the village and its tower is a prominent feature for miles. Again we have Perpendicular work. The tower is finely proportioned and is supported by some substantial angle buttresses with a three-light belfry window, the lights being filled in with stone louvres. There is a western door into the church through the tower with a four-



EARLY ENGLISH FONT IN WELLOW CHURCH, SOMERSETSHIRE.

centred head and a square label. The aisle windows are flat-pointed, almost Tudor, while the porch on the south side is piled up with buttresses and pinnacles on the angles; in the apex of the gable is a niche filled with a statue of the patron saint, St. Julian. The nave has a clearstory of three-light windows. The tower, aisles and nave are all embattled, and rainwater is (or, rather, was) carried from the roof by splendidly-carved gargoyles. The chancel is a recent addition; in it the architect has quite caught the spirit of the old work. I learnt afterwards that this addition was made by Messrs. Bodley & Garner, so we had the advantage of comparing good old with good modern work The interior of the church presents a singularly mediæval appearance. The original pews are still used, and a fine timber roof spans the nave. It differs from the other churches that we had seen in that it has two aisles, with the tower at the west end. A curious feature is that there is not a straight line in the building. The nave arches are all of different sizes. There is a very beautiful painted wooden screen between the chancel and the nave. The soffits of the chancel arch and of the arch to the Hungerford chantry (on the north side of the chancel) are panelled. The chantry is particularly interesting. It was built for the remains of the founder of the church, one — Hungerford, first Speaker of the House of Commons. The tomb of his wife is exceedingly elaborate. It is Italian in manner, with Ionic columns at each end supporting an entablature; in between these columns and supporting the entablature is an arcading, the architraves being worked with the guilloche pattern and the frieze ornamented with a series of small blocks, one recessed and the next projecting. The recumbent figure of the lady lies on the pedestal, which is divided into panels the outer of which are occupied by the effigies of her twin-children, while a coat-of-arms fills the centre. The tomb is surmounted with an ornamental coat-of-arms of Jacobean character. Originally there was a good deal of colour used, but now only fragments of it can be seen. The whole of the eastern wall of the chapel is covered with a colour scheme of some sort, but unfortunately it is hardly traceable. An industrious Owen Jones student would be repaid by a visit to Wellow Church. The font (see accompanying sketch) is Early English, and although so simple in design looks very well. The cover is of Renaissance character and an ornament is painted upon it frequently seen in Italian pilasters. I cannot pass without making a further reference to the chancel. If the outside has



WELLOW CHURCH, SOMERSETSHIRE, FROM THE EAST.



LOWER WESTWOOD MANOR-HOUSE. DRAWN BY W. HOLLAND HOBBISS.

partaken of the spirit of the old work, the interior has doubly done so under the hands of Messrs. Bodley & Garner. It looks as though some long-forgotten guild had raised itself, with its master-mason, master-glazier and master-carpenter, from under those grey tombstones to complete the work it had begun four hundred years ago. The work is refined and scholarly, and the carving is clean and well-designed. A western window is filled with some good modern glass and the close-timbered roof is well treated and executed. The whole building is a standing evidence of what can be done when the architect is in sympathy with his work and the builder knows his business.

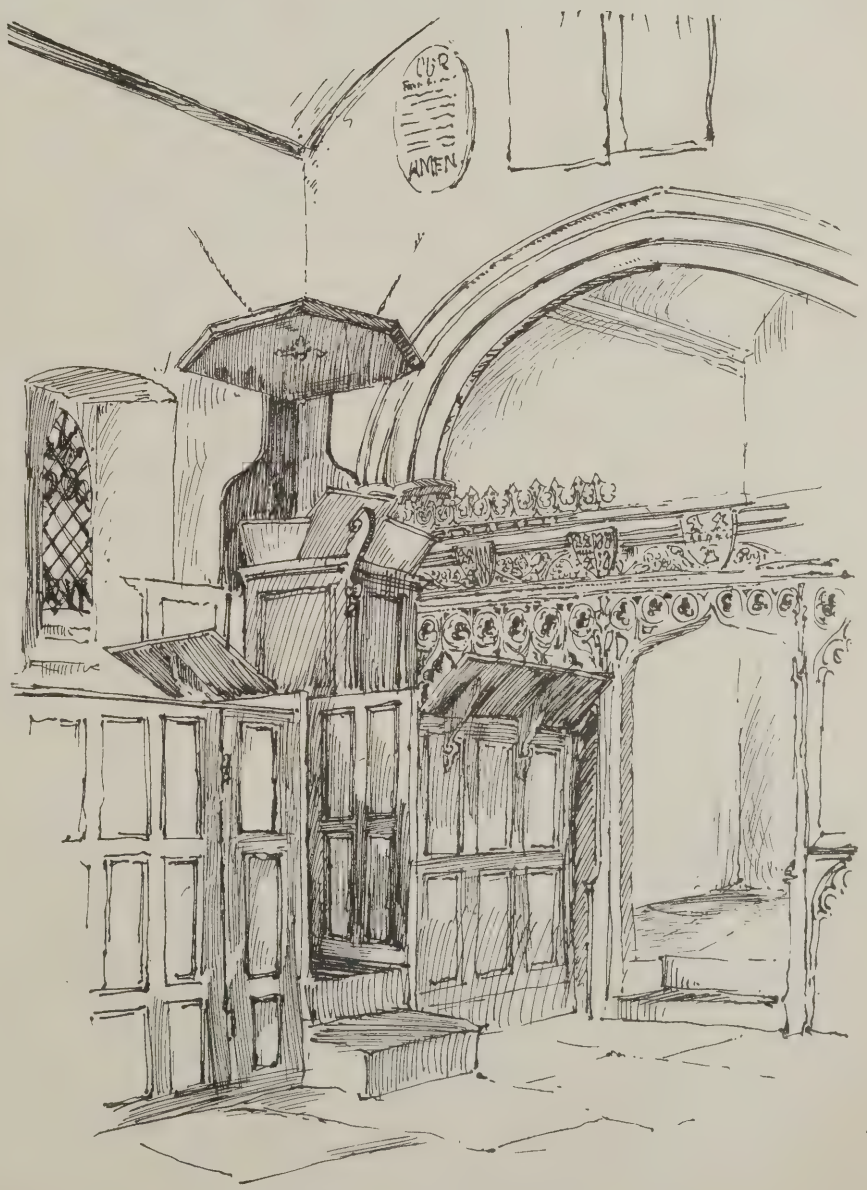
The manor-house at Wellow is a distinctly interesting building. The front elevation is simple enough, but the back is more pretentious with a courtyard, entrance porch and gabled roof. One of the rooms inside is oak panelled to the ceiling and is enriched with a Jacobean mantel-piece in a very good state of preservation.

About three miles from Wellow is Norton St. Philip. Here is another church well worthy of study. But we preferred to make some sketches of a rather more romantic building, "The George Inn" (see p. 94). This old half-timbered house is more picturesque and historical than architectural. It was here that Monmouth slept on the night prior to the fatal battle of Sedgemoor. The house was used by many royal and celebrated personages when travelling in that part of the country, from the thirteenth century onwards. The yard at the back has a decided old-world appearance. An open corridor flanks one side, from which lead sleeping chambers, while the other sides were occupied by stables. The corridor served the purpose of a gallery in a theatre, as from it the guests could watch the performance of the travelling mountebanks in the yard below.

We visited many other villages of lesser note, amongst which were Farley and Hungerford with ruins of the castle and chapel.

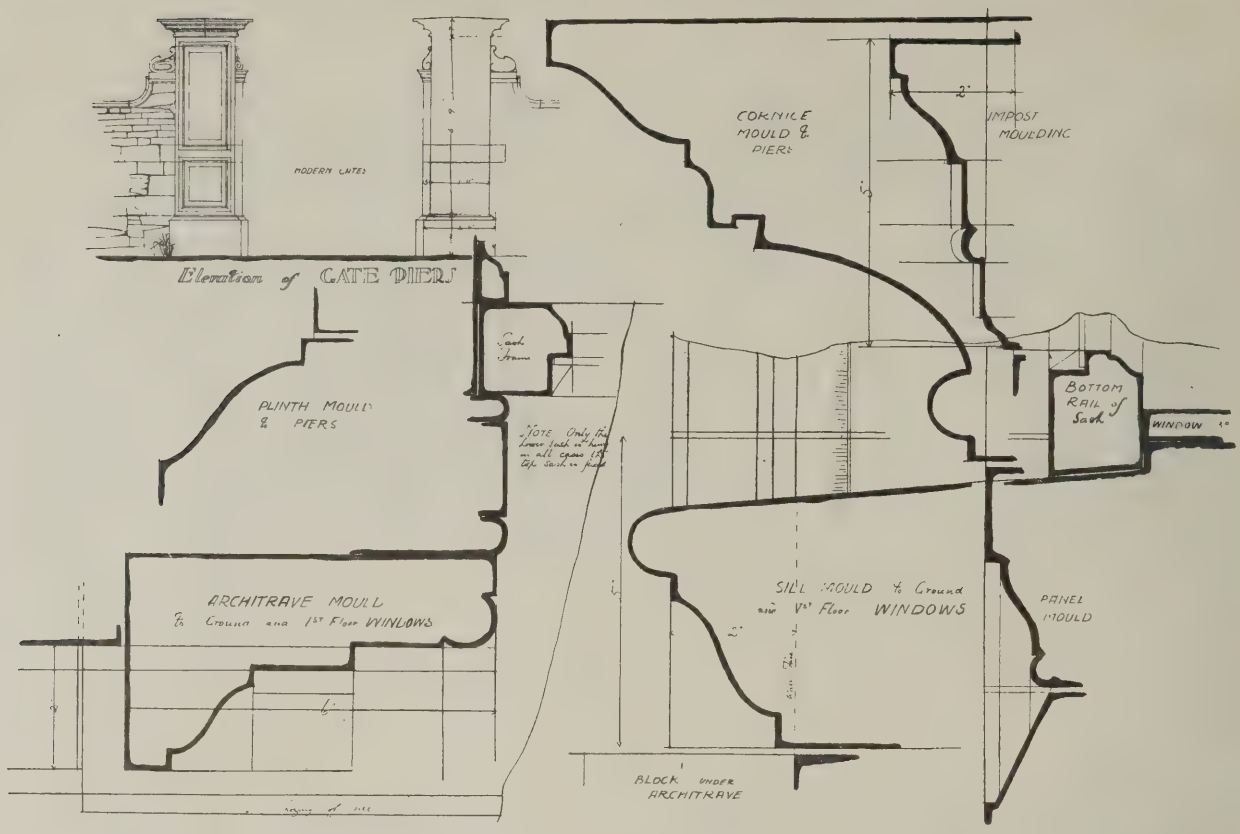
At Peasedown is a complete modern church by Messrs. Bodley & Garner. Hinton too is interesting. In fact, wherever a few cottages are clustered together there is sure to be found something worth seeing.

A holiday rather than a study—in this account I have not attempted any detailed description. It is merely a series of impressions such as you may get in wandering



PULPIT AND SCREEN IN CHALFIELD CHAPEL, WILTS.

B.



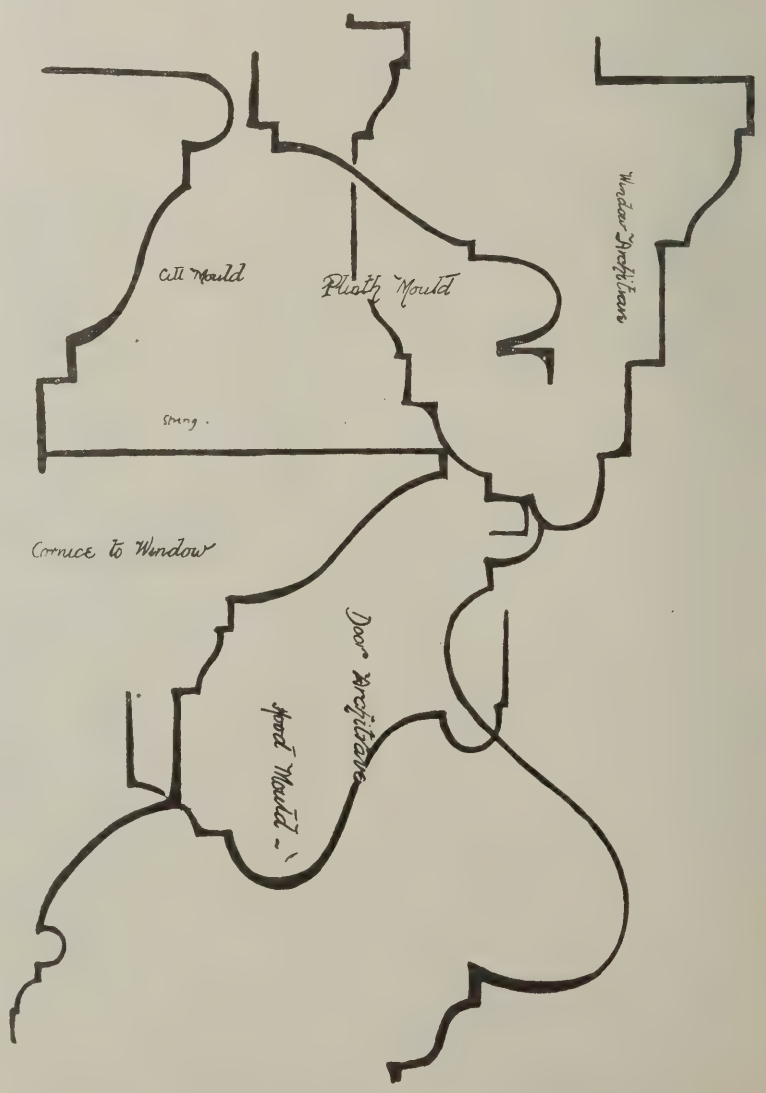
DETAILS OF EIGHTEENTH-CENTURY HOUSE AT WESTWOOD, WILTS. MEASURED AND DRAWN BY A. DENNIS THACKER.

about as we did; supplemented by a few of the many sketches which were made whenever eye and hand were drawn by the simple yet delightful architecture of these two English counties.

FIRE TEST WITH ROOFS.

PUBLICATION No. 72 of the British Fire Prevention Committee relates to a test with a slated roof and ceiling, and a flat roof covered with Vulcanite roofing and ceiling. The test lasted one hour, the temperature reaching 1,700 degs. Fahr., followed by the application of water for three minutes. Each floor was 100ft. super., and four weeks were allowed for construction and drying. The slates were "American green," measuring 20in. by 10in. by $\frac{3}{16}$in. thick, with a 2½in. lap, and the ridge covered with blue Staffordshire ridging. The laths were of sawn spruce 1¼in. by ¼in. Gutters lined with No. 14 gauge (Vielle Montagne) zinc. The Vulcanite roofing was covered with 2½in. of gravel and sand. The following is a summary of the effect of the fire:—In fifteen minutes the plaster to the ceiling of the slated roof began to fall; in twenty minutes the inside of this roof was well alight; in forty minutes the plastering of the Vulcanite roof began to fall; in forty-one minutes the slates on the other roof began to fall, and in forty-seven minutes the whole of the slate roof collapsed; while in fifty-four minutes the underside of the Vulcanite flat was a sheet of flame, but after sixty minutes the fire had not passed through it, and it was sound enough to be walked upon. In a "note" on this test Mr. Ellis Marsland says: "I think it will relieve the minds of London district surveyors of any doubt as to a roof of this construction being as fire-resisting as an ordinary slated roof."

A Stained-Glass Window has been erected at St. John's Church, Heselden, near Hartlepool. It has been executed by Messrs. Wailes & Strang, of Newcastle-on-Tyne.



DETAILS OF EIGHTEENTH-CENTURY HOUSE AT WESTWOOD, WILTS.

THE BRITISH ASSOCIATION.

CONCLUDING PAPERS.

THE BRITISH ASSOCIATION concluded its annual meeting at Belfast on Wednesday last: a report of its proceedings during the previous week was published in our last issue.

Before the Anthropological Section Mr. H. Balfour read a report on the further excavations at Arbor Low Stone Circle in Derbyshire to ascertain

The Age of Stone Circles.

He observed that the excavations begun last year had been continued during the present. About 38ft. of the fosse were excavated in digging three trenches across it. The vallum also had been cut through at one point, and was found to be largely built up of huge blocks of limestone from the fosse. Excavations were made cutting through the small dyke which lay outside the circle itself, and it had been determined that this dyke and ditch were either contemporaneous with or later than the circle. It could be taken as evidence that the circle, at any rate, was not early neolithic, but belonged either to the late neolithic or early bronze age. The other evidence in support of this lay in the absence of metal amongst the finds and the fact of a bronze-age tumulus having been constructed from material which formed part of the structure of Arbor Low. It was fair to suppose that a long interval elapsed before the circle was thus damaged for building the tumulus.

In the course of a paper on a "Prehistoric Cemetery-Cave in Palestine" Mr. R. A. Stewart Macalister said the excavation had been made was on the site of the ancient city of Gezer. Overlaid by *débris* which might tentatively be dated about 2,000 B.C., the mouth of a cave 30ft. long was found which proved to have been artificially cut out to serve the purpose of a crematorium, a chimney having been cut in the rock to provide the draught necessary for the fire.

Early Irish Design.

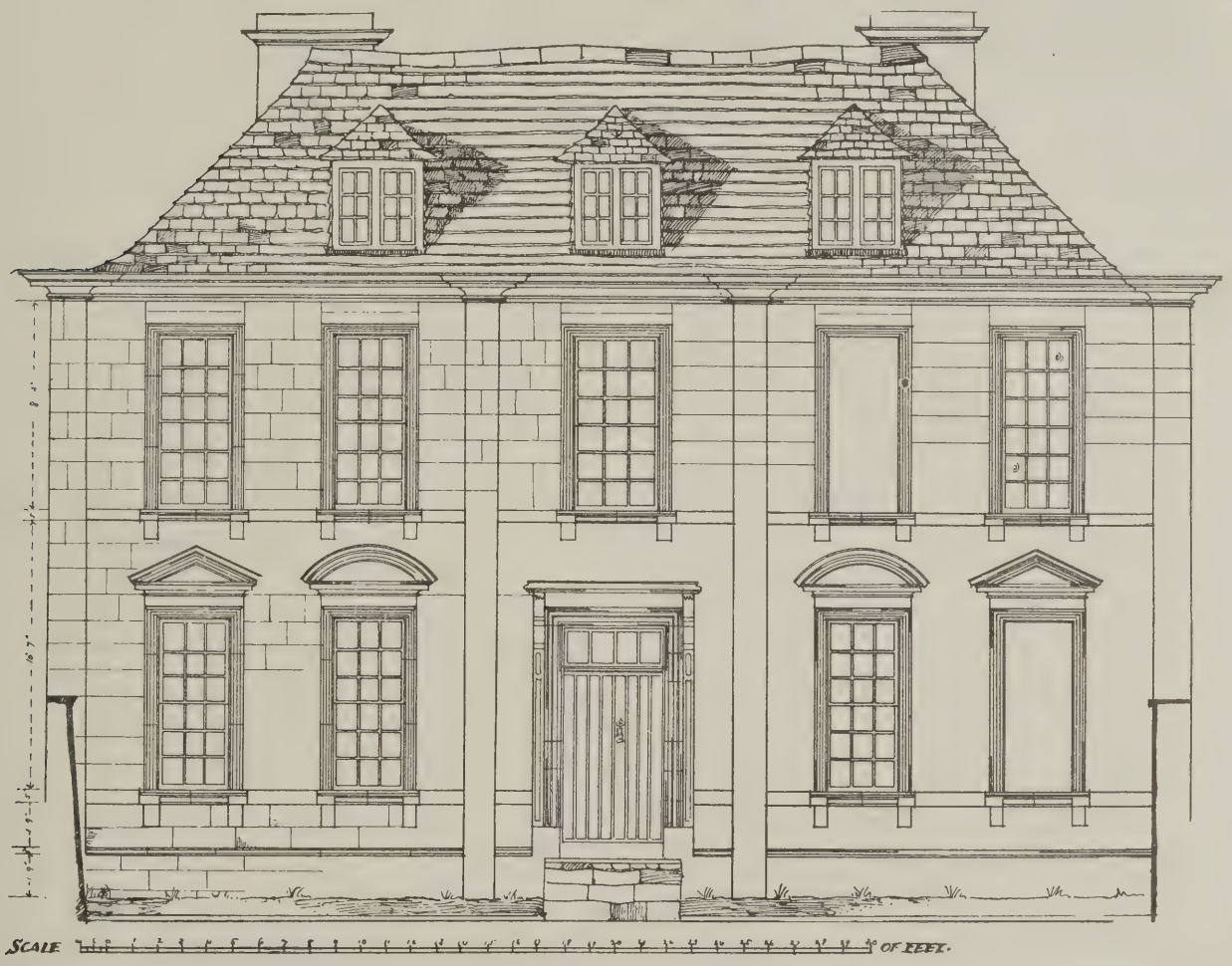
Mr. P. J. O'Reilly read a paper on the "Survival of Certain Pagan Sepulchral Symbols on Early Christian Monuments in Ireland." The monuments included cupped stones, stones with a cupped medial-band design, others bearing cup and concentric circle designs, others showing this design in combination with a radiating triple-line design, a cupped "fish-bone" design and combinations of cup and concentric circles and "fish-bone" designs. That these designs were wrought at a later period than their Pagan prototypes, and that the stones bearing them were not Pagan sepulchral monuments utilized as memorials of Christian dead, was shown by the existence on one at Dalkey of a symmetric combination of two cup and concentric circle groups and four single circles with an incised cupped Irish wheel-cross undoubtedly of Christian origin and contemporaneous with the remainder of the design, thus forming a valuable link between the Pagan-like patterns of the earlier members of the series and the free-standing crosses of the district, four of which bore the single-circle symbol.

Reports were read on "Excavations in the Roman Fort at Gellygaer, near Cardiff," and on "Excavations in the Roman City of Silchester."

The Strange Ruins of Rhodesia.

Mr. F. P. Mennell, Curator of the Rhodesia Museum, read an interesting paper on "The Khami Ruins near Bulawayo." He said that all over Southern Rhodesia were numerous structures testifying to a former occupation of the country by a race far more advanced in the arts than the Bantu tribes, who were shown by Arab records to have inhabitated the country for fully 2,000 years. The Khami ruins, situated twelve miles from Bulawayo, might be taken as typical. They consisted of about a dozen separate structures showing the usual mortarless walls faced with carefully-squared granite blocks about twice as large as an ordinary brick. These walls were about 3ft. thick, and as a rule rose perpendicularly without any batter to heights of 10ft. to 20ft. or more. The exterior walls roughly conformed to the shape of the ground available, or were more or less circular, but the interior ones ramified about in a most intricate manner. The principal ruin had three sets of walls at different levels. The main entrance had square ends to the walls on either side, and recent excavations had revealed the fact that a series of stone-built steps led up to it from the foot of the slope. In other cases the walls were rounded off at the entrances, and rounded buttresses supported them at times. Other devices in the way of decoration were the "chess-board" and "herring-bone" patterns, formed by varying the positions of the facing blocks and the introduction of dark-coloured dolerite blocks to contrast with the granite.

It had been stated that these structures could not have been roofed in, and in only one instance out of many hundreds was a covered entrance known. At Dhlo Dhlo



EIGHTEENTH-CENTURY HOUSE AT WESTWOOD, WILTS. MEASURED AND DRAWN BY W. HOLLAND HOBBISS.



COURTYARD OF THE "GEORGE INN," NORTON ST. PHILIP, NEAR BATH.

ruins, however, there were the remains of wooden posts let into the masonry, and these had now been found at Khami also. It was possible that they were intended, in some cases at least, as supports for a roof. That the buildings were intended primarily as forts could be inferred from their inaccessible situations, their narrow and well-commanded entrances, and the fact that the sides of some of the hills on which they were built had evidently been artificially steepened.

Discrimination was rendered difficult by the obvious fact that the natives had copied the designs of the earlier workers. This might indicate either that they were the degenerate descendants of the builders of these remarkable structures, or that their ancestors were forced to work for the latter as slaves—probably the correct explanation.

There were no inscriptions of any kind in any of the ruins, nor of iron tools such as must have been used in dressing the stone for building. The tools might well have rusted away during the thousands of years that had almost certainly elapsed since they were laid aside, but the absence of inscriptions was not so easy to explain if these structures were the work, as had been contended, of the Sabæans of Arabia.

Palaiokastro.

Mr. J. L. Myres read an interesting paper on the 1902 excavations at Palaiokastro in Eastern Crete undertaken on behalf of the British School at Athens by Mr. R. C. Bosanquet and others, and said that the results obtained were so promising that he hoped to arrange for a campaign on a larger scale in 1903. After giving a general description of the physical features of the district, he said that in Mycenæan times Palaiokastro appeared to have been one of the principal centres, perhaps the capital, of Eastern Crete. Excavations there had resulted in the discovery of a Mycenæan town extending over an area of at least 500yds. by 300yds. The houses near the sea were built on the gravel cliff and were generally humble in character. The largest house examined lay inland in a group of apparently spacious upper-class houses, constructed partly in the "megalithic" style characteristic of the Mycenæan homesteads so common in the limestone districts of Crete, partly in regular ashlar masonry; the upper storeys were of brick. The author described the interior, showing views of the megaron or courtyard, 25ft. long, the roof of which was supported on four columns placed round a cemented impluvium 6ft. square. An interesting part of the house was a sunken bathroom, a reproduction in miniature of those found in the palaces at Knossos and Phaestos. The house was originally one-storeyed; later a second storey was added in brick, with two staircases leading to it, one of them about 6ft. wide. On the addition of this storey some of the lower rooms were apparently converted into magazines.

A Derby Architect's Failure.—The affairs of Frederick Charles Coulhurst, builder and architect, of Derby, came before the Official Receiver last week. Debtor said he commenced business in 1883, when he purchased a practice for £1,500. In 1886 he entered into partnership with a Mr. Booty, who brought £500 into the business. The partnership was dissolved in 1900, and since then debtor had carried on the business on his own account. The examination was adjourned for a month.

Engineering Notes

The Will of Mr. W. F. Faviell, M.I.C.E., who made the first Indian railway, his last contract being to extend the Port Elizebeth Railway, South Africa, left estate valued at £135,900 1s. 8d. gross, including nett personality £126,372 1s. 9d.

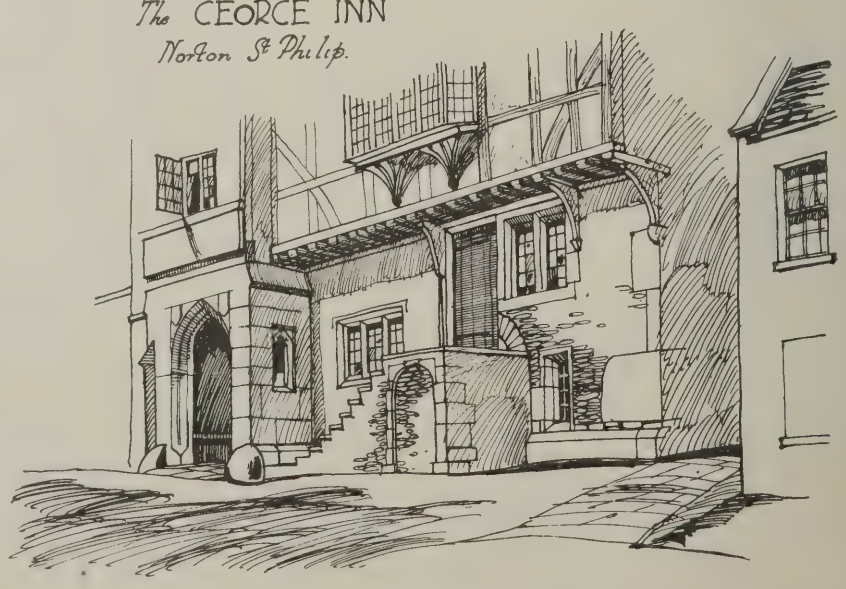
Mr. A. W. Ackermann, A.M.I.C.E., M.S.I., who has been practising as an engineer and architect in Cape Colony for twenty-six years (for the last six in partnership with Mr. W. Adamson as Messrs. Ackermann & Adamson), has just dissolved partnership and is returning to England for some time. His business address is 47, Victoria Street, Westminster, S.W.

Mr. Hamilton Owen Rendel died in his sixtieth year last Wednesday at Barlaston, Staffs. He was at the head of the engineering department of the Elswick Works, Newcastle-on-Tyne, until about two months ago, when he retired owing to ill-health. He was the youngest son of the late Mr. James Meadows Rendal, F.R.S., C.E., who constructed the great harbours of Holyhead and Portland, as well as other important Government works.

A Consulting Engineer's Affairs.—The affairs of Frederick H. Bowman, consulting engineer, of 30, Victoria Street, Westminster, came before the Court of Bankruptcy on Thursday last. Debtor attributed his failure to his connection with the Higher Antley Brick and Tile Co. The statutory accounts were not filed, but proofs amounting to £5,712 13s. were lodged, and the assets appeared to consist chiefly of shares in certain companies. The meeting was adjourned.

Masters and Men.

Labour in August.—The Board of Trade states that employment in the building trade generally is rather dull except for masons. With most branches it is not so good as a year ago, but is slightly better than in July. The percentage of unemployed union members among carpenters at the end of August was 2·8, as compared with 3·0 at the end of July and 2·6 in August, 1901. The percentage for plumbers was 6·1, as compared with 6·5 in July and 5·8 a year ago.



DRAWN BY A. DENNIS THACKER.

BRITISH ARCHAEOLOGY.

THE British Archæological Association held its fifty-ninth annual congress last week. On Monday afternoon the members met at Caxton Hall (the old Westminster town hall), when the Mayor of Westminster (Lieut.-Col. Clifford Probyn), who is president of the Association for the coming year, formally declared the congress open. In the course of his address he said that a more appropriate place than Westminster could not be found for the congress, as, according to Sir Walter Besant, Westminster was more ancient than the city of London ; for Thorney or Bramble Island—the former name of Westminster—was an important trading centre long before Londinium grew out of the marshes. As Mayor of Westminster he was bound to regard with approbation the increasing attention paid to the study of

Ancient Memorials of a National Character

rather than to the exclusive admiration of the more remote remains of the Latins and the Greeks. At one time nothing that was not "classical" was deemed worthy of the attention of the antiquary. But the Association, being so emphatically the British Archæological Association, had taught us that archæological antiquarian research, like charity, best began at home, rewarding us with richer and more informing results, involving a more poignant veneration for those who had gone before us, who built better than they knew, and inspiring a more knowledgeable pride and affection for our native land. He marked with the heartiest approval that particular object of the Association—the preservation, as far as was possible, consistently with the imperative requirements of the living, of our ancient monuments. Old houses and historic alleys must, for example, however old and picturesque, give way to improvements such as those now being conducted in the Strand, with which he had a great deal to do in his official capacity, but much could be done to preserve from wanton destruction or ignorant neglect those works of ancient times that still existed everywhere throughout this England of ours. He would be wanting in appreciation if he did not mention the work of the London County Council in this respect. He desired to see the powers of the Ancient Monuments Protection Acts conferred upon the Westminster City Council, so that the Council might be enabled to preserve such a monument as the old Roman bath in the Strand, that might perchance be any day swept away by some ruthless speculating builder after having weathered the dangers of centuries. It should certainly be his business to impress upon his council their imperative duty to collect, collate and catalogue the invaluable muniments and records, many of them almost unknown to the antiquary, of the eleven parishes that constituted their city, to which students could obtain access. The national importance of archæology was obvious, for the study of the past helped to solve the riddle of the future, and thus the historian was exalted into the seer.

The East Window of St. Margaret's Church.

The members afterwards visited St. Margaret's Church, and had its 1,000 years of history briefly described by the rector, Canon Hensley Henson. Its plain exterior belied, he said, its rich interior. Mr. J. Chalkley Gould told the remarkable story of the east window, which 400 years ago took five years to be executed in Holland, intended by King Ferdinand as a gift to Henry VII. for erection in Westminster Abbey. But the king died before it was finished, and it found its way temporarily to the Abbey of Waltham. For three centuries it underwent many vicissitudes. Having been bought by the owner of Copt Hall, Essex, for fifty guineas, it was sold by his son in 1759 to the churchwardens of St. Margaret's, Westminster, for £420. For three years it was the subject of a lawsuit as a "superstitious picture." The final judgment that the Crucifixion (the subject of the window) was not alone, and therefore not intended for worship, has been cited in all similar suits, notably in connection with the reredos of St. Paul's Cathedral.

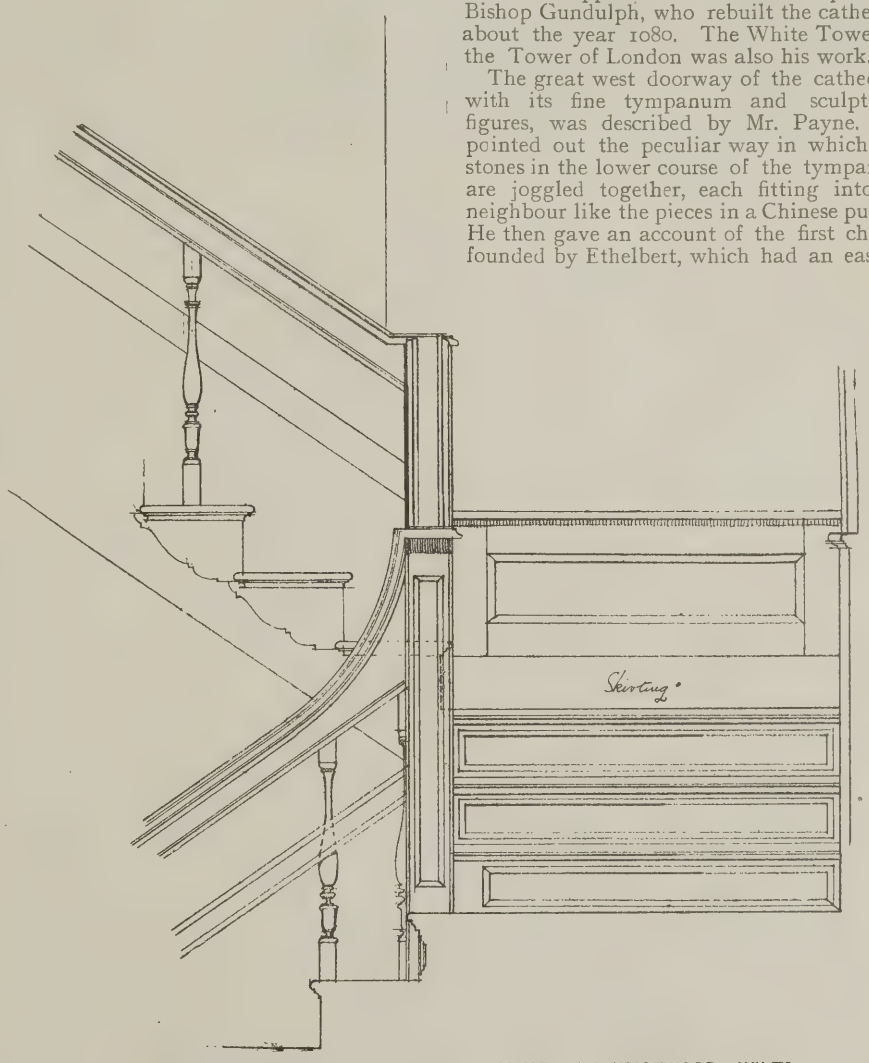
The Castle and Cathedral of Rochester.

On Tuesday the members visited Rochester to inspect the cathedral and castle, and the celebrated Elizabethan mansion, Cobham Hall, and Cobham Church with its unique series of brasses. The castle was first visited under the guidance of Mr. G. Payne, F.S.A., who is superintending the work of the corporation (which has been in progress for some years) for the preservation of the ruins. Mr. Payne gave an interesting account of the discoveries made in the course of the restoration. The dungeon in which the queen of Robert Bruce was confined in 1314 appeared until recently to be a small chamber, but in reality it had become filled up in the course of years with earth, which was dug out to a depth of 14ft., when the original stone floor was reached. The tracing of successive repairs was exceedingly interesting, as was the account of the methods adopted to show the parts rebuilt by Henry III. Part of a Norman arch in the chapel on the upper floor has been uncovered, and just sufficient of it is shown to contrast the original Norman architecture with later work. The castle had often suffered from fire, of which there were many evidences ; parts of the walls were covered with molten lead to a depth of 2in. The whole of the existing remains had generally been attributed to Gundulph. This Mr. Payne believes to be an error. The curtain wall was no doubt erected by Gundulph, and may be distinguished by the peculiar courses, in which the stones are set diagonally, from the somewhat later Keep, which, there seems now to be no doubt, should be attributed to Archbishop Corbeuil, who was the first Constable of the castle. The party then viewed the core of the Roman wall, which was first thickened and raised by Gundulph, and afterwards by Henry III. In the castle were also seen piles of wood which formed part of the old Roman bridge across the Medway. They were discovered beneath the foundations of the old bridge during the erection of the present structure.

At the cathedral interest centred in an ancient tomb on the south side of the altar, which is supposed to be the burialplace of Bishop Gundulph, who rebuilt the cathedral about the year 1080. The White Tower in the Tower of London was also his work.

The great west doorway of the cathedral, with its fine tympanum and sculptured figures, was described by Mr. Payne. He pointed out the peculiar way in which the stones in the lower course of the tympanum are joggled together, each fitting into its neighbour like the pieces in a Chinese puzzle. He then gave an account of the first church founded by Ethelbert, which had an eastern apse, the outline of which is now recorded by carved lines on the floor of the north aisle of the present building. Though built in Roman fashion, Ethelbert's was a Saxon church. Gundulph's cathedral extended to the present pulpit, and had a nave of nine and a choir of six bays. Between 1115 and 1130 A.D. it was reconstructed by Ernulph and John, whose work, notably in the triforium, might be recognised by its ornate character. From the choir eastward the work is of a later date. The walls of the Norman church are inside the walls of the choir, which show an Early English casing.

At luncheon, which was served in the Bull Hotel—the scene of some of the most amusing incidents in "Pickwick"—a vote of



STAIRCASE IN EIGHTEENTH-CENTURY HOUSE AT WESTWOOD, WILTS.
MEASURED AND DRAWN BY A. DENNIS THACKER.



THE MANOR-HOUSE, CHALFIELD, WILTS.

thanks to Mr. Payne for his addresses was passed.

Cobham Hall and Church.

The drive to Cobham Hall, which lies about five miles from Rochester, was by Gadshill, the residence of Charles Dickens, and Cobham Woods. A paper on the history and the architecture of the building was read by Mr. Payne, after which Lord Darnley conducted the visitors through the picture and portrait galleries, containing works by Rubens, Titiens, Vandyk, Reynolds and Gainsborough. In acknowledging a vote of thanks, Lord Darnley said he was always very pleased to show Cobham Hall to visitors.

At Cobham Church the party were received by the vicar, the Rev. A. H. Benger. The series of brasses in this church, extending across the floor of the chancel, were described as the finest and most complete in the country. The church is in the main of the fourteenth century; traces, however, of an earlier church have been discovered in some Roman tiles built into a piece of wall utilised in the existing church. Part of this old work has been uncovered in the south aisle, and is now protected by a grille, which everybody agreed was a highly creditable production for the village blacksmith, by whom it was made. The church contains good sedilia and a piscina of the Decorated period, and recent researches have brought to light an earlier double piscina, which has been inserted to the west of the sedilia. In the south wall of the chancel is a flight of stone steps, supposed to have led to a gallery for the exhibition of relics to the people. The adjoining "College," as it is called, or the ancient residences of the priests attached to the church, which since the Reformation have been used as almshouses, was also inspected with great interest.

Compton's Norman Church.

Guildford was the centre of Wednesday's proceedings. The members went by train to Godalming, and thence drove to the village of Compton to inspect its Norman church. Mr. Ralph Nevill, F.S.A., who acted as guide, said that what made the church unique from the archæological point of view were its two chapels or sanctuaries, one above the other, in the east end. Nothing authentic was known to explain this curious feature of the church. In the upper chapel—formerly approached from outside the edifice, but now reached by the internal wooden stairs—there is an early Norman piscina, and fronting it is an oak balustrade, which is said to be the oldest piece of carving in England. The altar rails are also a fine example of Jacobean carving. Mr. Nevill said he was glad that in the rage for things Gothic they had not been replaced by rails of brass from Birmingham.

Loseley Place and Guildford.

The manor-house, Loseley Place, described as the oldest Elizabethan house in the kingdom, was next inspected. The party were received by the owner, Mr. W. More-Molyneux—the house was built by his ancestor, Sir William More, about 1562—who described its pictures and other art treasures. The muniment room contains a very large collection of ancient manuscrips of the Tudor and Stuart periods. In the hall, which has a minstrels' gallery, is some exceedingly fine woodwork and a panelled screen, curious rather than artistically beautiful, in which, by means of carving and inlaying, the idea of perspective is conveyed to the spectator, who seems to be looking at a series of arcades rising above a pavement of black and white marble.

The party then proceeded to Guildford to inspect the many places of archæological interest in that picturesque town. They were shown over the Church of the Blessed Virgin Mary by Canon Grant. The general character of the building is Norman and Early English. It contains two chapels—St. John's to the north of the high altar, and St. Mary's to the south.

At Guildford Castle a paper on the history of the square Norman keep—which is now surrounded by public gardens, laid out by the corporation of Guildford—was read by Mr. H. E. Malden. He said that the first mention of the Keep was in 1202, when the sum of 4s. was paid out of King John's Exchequer for its repair as a prison, the hall and other buildings, of which little trace now remains, being used for residential purposes. The Keep continued to be used solely as a county prison until the reign of James I., when the castle was sold by the Crown to a family named Carter. The property ultimately passed to Lord Grantley, from whom it was purchased by the corporation of Guildford in 1885 and laid out as a place of recreation, which was dedicated to the public use for ever on Jubilee Day, 1887.

The Keep is a good example of the way in which the Normans copied the Roman fashion of building, and also made use of Roman material in constructing their massive fortresses. At Guildford, Roman tiles are built into the walls and not improbably some of the squared stones, as at other places, were hewn by Roman masons. In the arrangement of the different courses the Roman plan is often followed, flint being succeeded by tiles or tile-shaped stones, with occasional courses of herring-bone work.

At the Guildhall, which dates from 1683, the corporation plate was exhibited by the mayor and described by Mr. Nevill.

Abbot's Hospital, built by Archbishop Abbot in 1619, was next visited. The revenue from the lands with which the archbishop endowed the building is still devoted to the support of "twelve poor brothers" and "eight poor sisters," who reside in different wings of the hospital. The chapel contains an excellent portrait of Archbishop Abbot.

Colchester Castle.

On Thursday the party visited Colchester. The Keep, the only remaining portion of the castle, stands on an elevation of an entirely different character from that at Guildford. To obtain the necessary height, together with solidity, a mass of sand was heaped up on the hill sloping down to the Colne, and on this a series of concrete arches, each with a span of about 15ft., was constructed. On the foundation thus obtained the superstructure was erected. The vaults may be visited, and one of them still contains a considerable portion of the sand on which the arches were turned. In plan the Keep is quadrangular, with square turrets at the angles. At one time it was ascribed to the Romans. According to Dr. Laver, it stands in what was the forum of the Colonia Camelodunum, the walls of which have been carefully traced out by him. In the excavations which were made under his superintendence a row of shops was discovered by the forum wall, and traces of a piazza or covered way.

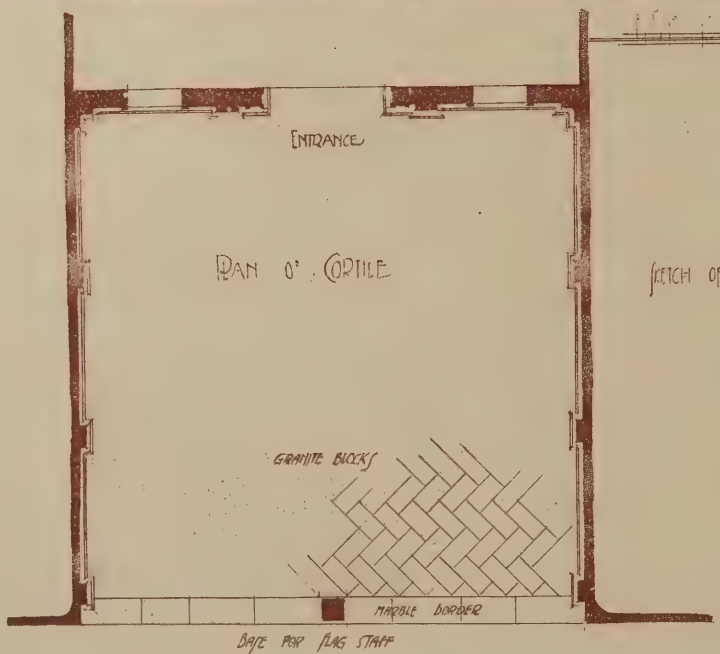
Norman Pillars and Wall-work.

After lunch the time was devoted to ecclesiastical remains and the Roman wall. In one respect the church of the Augustinian Priory of St. Botolph resembles the castle—

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SCALE FOR ELEVATIONS

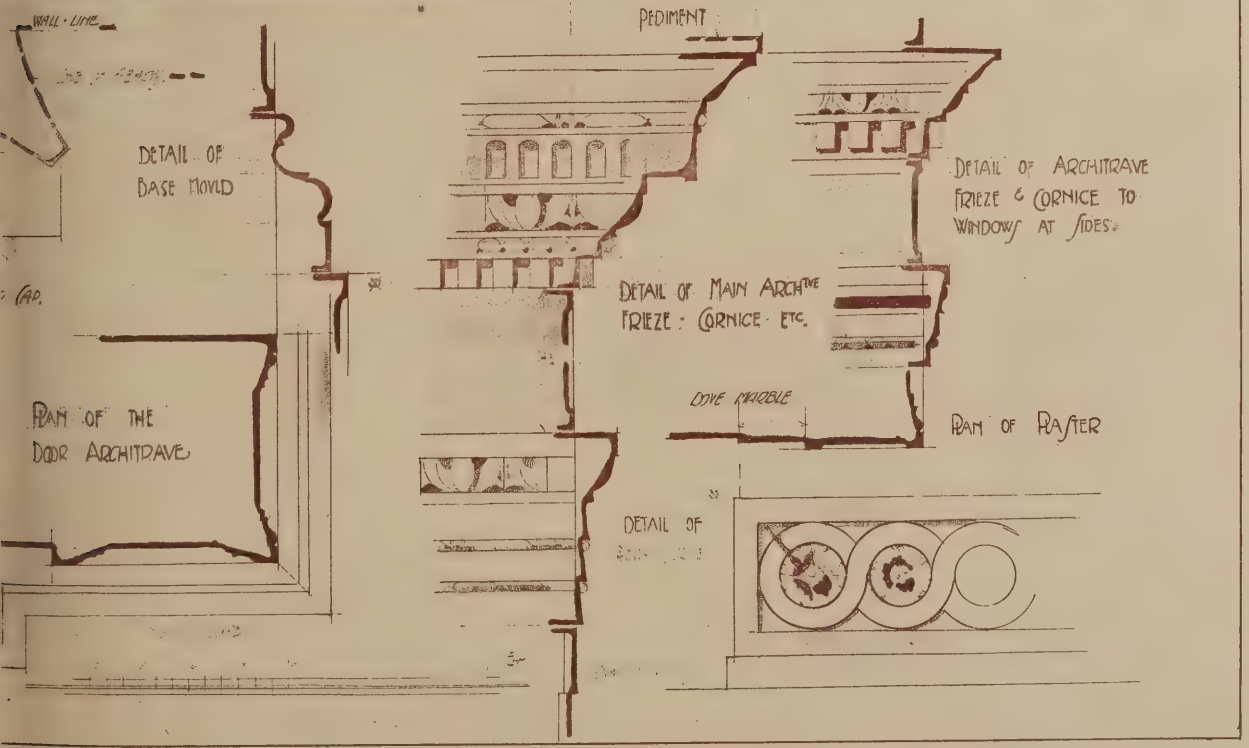




MEASURED AND D

S-GIOVANNI-EVANGELISTA-VENICE-DRAWING OF CORTILE





"INK-PHOTO." R. J. EVERETT & SONS, 56 LUDGATE HILL, E.C.

N BY J. FORBES-SMITH.

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DRAWING ROOM
STUDY
KITCHEN
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RIDGEMOUNT,
ENFIELD, MIDDLESEX

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the materials are entirely Roman. The huge Norman pillars are built up of small stones, flints and tiles, and a tile-course serves for the usual capital. The question is often asked whether such pillars were plastered. They undoubtedly were, for in several places the stucco still remains. There is a good western doorway, and above are two rows of intersecting semicircular arches in red Roman tiles, which, from the nature of the material, form lancet arches where they intersect. The floor has been filled up, but excavations to the depth of about 5ft. have revealed portions of the original flooring. There are no remains of the religious house to which this church belonged, nor of the Benedictine Foundation of St. John, not far off, of which only the gate is standing.

The Roman walls are a characteristic feature of Colchester, and roughly form a parallelogram—of course, broken in places—the sides of which measure somewhat less than two miles. The material is stone from the neighbourhood with regular bands of tiles. The usual thickness is about 8ft., but considerably more at the gates and posterns. The most important parts are a guard-room, of which very few remain, and a turned arch of Roman brick in one of the ruined bastions. Time has dealt heavily with these walls in some parts, but the means adopted to preserve them are the best possible. They have been strengthened wherever necessary, but in no case does the new work simulate the old, and had not repairs been effected they must in places have fallen into ruins.

Staple Inn.

On Friday the members returned to London and paid visits to Westminster Abbey and Staple Inn. In a paper on the latter Mr. T. Cato Worsfold mentioned that in 1884 "the ancients" sold the inn for £80,000, and it was contemplated to pull it down and erect modern offices and residences upon the site But this interesting survival of mediæval London was preserved by the Board of Works purchasing the ground on the south side of the inn for the extension of the Patent Office, and the remaining portion of the inn coming into the possession of the Prudential Assurance Co. for £68,000.

The concluding meeting of the congress was held in the evening at the Westminster Palace Hotel, when Dr. Brushfield read a paper entitled "Britain's Burse," descriptive of the new exchange in the Strand opened in 1609 to compete with the old or Royal Exchange opened by Queen Elizabeth in 1571. The Burse was closed in 1737, and was soon after demolished.

In all probability Sheffield will be the meeting-place for next year's Congress.

A New Isolation Hospital for Infectious Diseases has just been opened at Tanfield. It is erected upon a site of three acres, and the cost, exclusive of the site, will be about £8,000. The building has been designed by Mr. George T. Wilson, of Blackhill, and the principal contractor was Mr. Thomas Mordue, of Dipton. The administrative block in the centre is connected to the male and female wards on either side by long corridors. There are sixteen beds in each wing, making provision for thirty-two patients. The whole of the building is of stone, with dressed facings, &c.; the floors are laid in marble terrazzo, and the walls composed of Parian plaster. Every angle in the building is rounded off. In front of the main buildings are the washhouses, patent drying closets, ironing-room, ambulance carriage-house, mortuary and disinfecting chamber. The drainage is disposed of by three large filter beds, constructed in a wood some 300yds. distant from the main buildings.

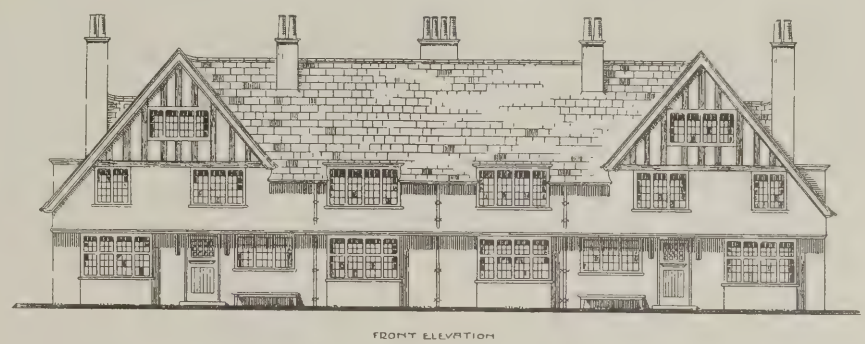
CURIOUS.

IN our issue for September 3rd we published, as a centre plate, a design for a pair of small country houses by Mr. F. E. Ravenscroft, of Reading—a design hung in this year's Royal Academy exhibition. Our attention has since been called by a Blackburn correspondent to the design for two country cottages published in our contemporary the "Building News" for December 4th, 1896, this design having been awarded the first prize in one of the competitions which our contemporary holds. We republish the two designs on this page, the upper one being Mr. Ravenscroft's. There is such a striking resemblance between them that we wrote to Mr. Ravenscroft asking whether he was the author of the design published in our contemporary (no name having been given on it), in reply to which he says:—"I know nothing about any 'Building News' designs, as I never, or hardly ever, see the 'Building News,' and have never been a competitor in any of its competitions."

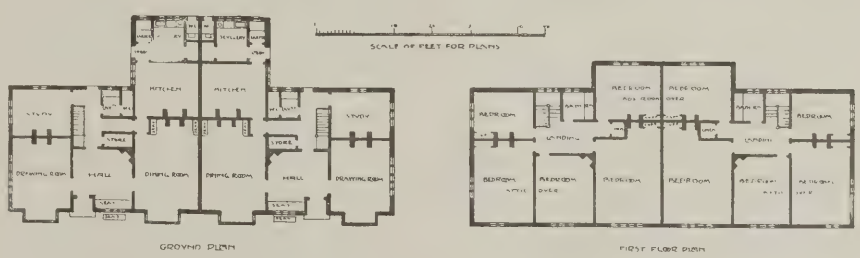
There is doubtless nothing new under the sun, but this is a most astonishing case of cerebral parallelism.

CREWE TOWN HALL COMPETITION.

FORTY-FOUR sets of designs were sent in for the proposed new municipal buildings at Crewe. The Corporation intend to utilise the site of the existing municipal offices, with the addition of the adjoining hairdresser's shop, the Market Tavern public-house, the fire station, and the Corn Exchange, the estimated cost of the scheme being £14,000. Messrs. Woodhouse & Willowby, the well-known Manchester firm of architects, were appointed as advisers to the Corporation in the selection of the first and second designs, and they have awarded the first premium of £50 to Mr. Henry T. Hare, F.R.I.B.A., of London. With regard to the second award of £25, they reported that the designs of three competitors were of equal merit, and suggested that the Committee should increase the amount to £30 and give each of the three £10. This the Committee have decided to do, and the second prize will therefore be divided between Messrs. Banister Fletcher & Sons, London; Mr. Albert E. Dixon, A.R.I.B.A., Leeds; and Messrs. Rodway & Denning of Bristol. The height



FRONT ELEVATION

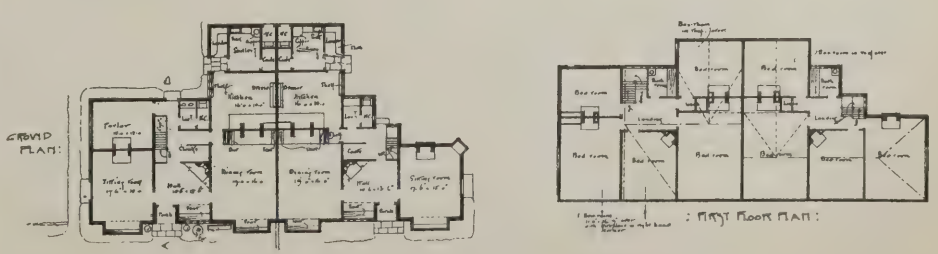


GROUND PLAN FIRST FLOOR PLAN

F. E. RAVENSCROFT, ARCHITECT.



: FRONT ELEVATION :



: FIRST FLOOR PLAN :

C. J. F. PALMER, ARCHITECT.

of Mr. Hare's building to the ridge of the roof will be 56ft., or several feet higher than the premises of the Mechanics' Institution on the opposite side of Earle Street. The basement is to be wholly occupied by commodious store-rooms, and the rooms on the ground floor will be allocated as follows:—Borough accountant's department (consisting of a private office, general office and strong-room); rate collectors' department (a private office, general office, strong-room and cash office); sanitary inspector's department (general office, private office, stores and night foreman's office); and weights and measures department (general and private offices). On the first floor the principal room will be the council-chamber, which will be situated at the back of the building so as to obviate any noise from traffic in the streets. The mayor's parlour and reception-rooms will adjoin the council-chamber, and provision is also made for two committee rooms, an ante-room, cloakrooms, &c. The town clerk's department will be on the same floor, and will include a private office, an assistant's office, general office, waiting-room, strong-room and stores. In the front portion of the second floor there will be the medical officer's department (private office, clerk's office, waiting-room, stores and chemical laboratory), and the school attendance officer's department (private office and waiting-room, together with a room for committee meetings). The borough surveyor's department will also occupy the second floor, and the rooms will include a private office, clerk's office, building inspector's office, drawing office, plan-room, waiting-room, &c. The new buildings will cover an area of 880 sq. yds., with a frontage to Earle Street of nearly 92ft. and an average depth of 86ft.

Law Cases.

Party Walls under the L.B.A.—At Greenwich Police Court last week Mr. Baggallay gave judgment in a case which was argued recently by Mr. Germaine for the owner and Mr. Palmer Andrews for the London County Council. The summons was against Mr. Badger, district surveyor, at the instance of Mr. G. F. Havell, builder, High Road, Lee, who applied that the order of the district surveyor with reference to the connection of buildings Nos. 1 to 4, Obelisk Buildings, Lewisham, should be reversed. Mr. Baggallay, in his judgment, said the district surveyor had required the builder to carry out section 74, sub-section 2, which provided for special protection from fire in the case of any building used in part for trade and in part as a dwelling-house. These buildings were erected before 1894, and no objection could have been taken to them under any law then in force. Neither building was, however, constructed in accordance with section 74, sub-section 2. The builder proposed to connect the two buildings by making an opening in the party wall which separated them, and in these circumstances contended that No. 5 should be treated as an addition to Nos. 1 to 4, and that, provided No. 5 be so altered as to comply with the section of the Act of 1894, he could not be compelled to carry out the requirements of that sub-section in respect of the buildings Nos. 1 to 4, and he relied on sections 209 and 210. If the intended operation amounted only to an addition or alteration to the existing buildings, no doubt the builder's first contention would be sound, but he (Mr. Baggallay) was of opinion that the real effect would be to unite the two buildings within the meaning of the sub-section referred to, and that in that case section 210 did not exempt him from the consequences. The objection of the district surveyor was, therefore, good, and he ordered that it be affirmed.

Bricks and Mortar.

Aphorism for the Week.

He that seeks popularity in art shuts the door on his own talents.—Mrs. Jameson.

Our Plates. "Ridgemount," Enfield, Middlesex, has recently been erected and commands extensive views towards the west. It is built of Bracknell red bricks and roofed with tiles somewhat purple in colour. The turret is covered with copper. The lozenge patterns are formed with Luton bricks and add some interest to the house. The feature of the interior is a hall extending from front to back, arranged so that the portion next the verandah can be curtained off with a separate fireplace. The house is warmed by the low-pressure system worked from the furnace in the conservatory. The builders were Messrs. Palmer, of Enfield Town.—The small green and white house at Enfield looks well in its setting of oak. The hall is panelled, and some interesting glass is used in the windows. Messrs. Allen Fairhead & Son, of Enfield Town, were the builders The architect of both these houses is Mr. Alfred H. Hart, A.R.I.B.A., of 1, Verulam Buildings, Gray's Inn.—The cortile, S. Giovanni Evangelista Venice, one of the earlier examples of the breaking away from the severe classic forms and a beautifully-proportioned structure of various coloured marbles, forms the entrance to the Scuola di S. Giovanni Evangelista, originally a building of the fourteenth century, but now modernised in the interior. Fortunately the cortile is untouched, as is also one side of the handsome old vestibule in the style of the Lombardi (1481) The drawing is by Mr. J. Forbes Smith, A.R.I.B.A.

The American Building Trust. "It is rumoured that an American Building Trust is to be formed, with a capital of some sixty-six million dollars, to take in hand the reconstruction of London."—*Daily Paper.* Inspired by this announcement "Punch" gives us these three verses:—

Say, are you sure that your Combine
(Or is it *Combine*?) will be grounded
In all the classes of design
With which we love to be surrounded?
Can you, for instance, emulate
Our Ludgate Bridge's gorgeous gilding,
Erect the Fleet Street Griffin's mate,
Or beat the Admiralty building?

Can you prepare us plans to rank
With British Art's supreme creations?
Could you have built the Birkbeck Bank,
Or Paddington and King's Cross Stations?
Will you, when decorating walls
(Like some with whom we're well acquainted),
Declare the frescoes in St. Paul's
Are not so bad as they are painted?

If so, we greet you—oh, but stay,
It's only right for us to mention
That others in the building way
Are giving us their best attention;
And so we fear you cannot come,
Unless the Trust that you announce 'll
Put by a fairly handsome sum
To pension off the County Council.

Sydney's Parliamentary Buildings. In January, 1888, Lord Carrington, then Governor of New South Wales, laid the foundation-stone of what was intended to be a gorgeous pile of Parliamentary buildings in Sydney. During the fifteen years that have since elapsed it has not been introduced to a single companion. Once more the propriety of providing Sydney with a decent Parliament House is being urged. The collection of ramshackle wooden sheds that have served for sixty years are reported to be in imminent danger of collapse through the ravages of white ants. How they have contrived to escape destruction by fire is a puzzle. They were originally erected in the early years of the last century by a trio of enterprising Sydney citizens, who undertook to build a hospital if permitted by the ruling military authorities of the period to import 45,000 gallons of rum.

Enquiries Answered.

The services of a large staff of experts are at the disposal of readers who require information on architectural, constructional or legal matters. Questions should in all cases be addressed to the Editor. The querist's name and address must always be given, not necessarily for publication.

Heating a Public Hall.

Cardiff.—P. B. writes: "What would be the most economical means of heating a hall as shown by the accompanying plan (not reproduced)? Would gas stoves be likely to prove unsatisfactory in any way?"

The most economical way of heating the hall would be by means of hot air or steam. The heating of such a hall must be considered in conjunction with its ventilation. Both are influenced by the position (sheltered or otherwise) of the building; of the material of which it is built; and of the purpose for which it is used. Presumably the hall is used for religious services or lectures, that is, for one hour and a half or two hours at a time, and then completely emptied. If there is a cellar under the whole of the hall, a hot-air furnace would be most economical; if there is no such cellar, a steam apparatus would be better. The hot-air ducts or steam radiators should be placed under the windows as well as in the aisles. To heat by means of gas would not be economical, though it would require less attention. To burn the gas in open stoves in the hall would almost certainly cause a disagreeable smell. To burn gas in enclosed stoves after the manner of a hot-air furnace would be expensive.

G. A. A.

Situations in Architects' Offices.

London, N.W.—W. L. C. writes: "Should I experience any great difficulty in obtaining a berth in an architect's office? Kindly also advise me as to any suitable Government vacancies. I am at present in the drawing office of a large engineering firm, where I have acquired considerable experience in steam and hot-water heating, laundry schemes, &c. I also have a silver medal for advanced building construction, and four bronze medals for other building subjects, besides certificates"

Particulars of Government appointments are given on p. 148 of our issue for April 23rd last, and on p. 451 of our issue for February 12th last. As you have a knowledge of heating and laundry machinery we should think you would do best by endeavouring to become a specialist in these branches, as there is plenty of scope for a consulting engineer, work of this nature at present being mostly confined to trade firms. You should be able, with your qualifications, to obtain a situation in an architect's office by replying to "Situations Vacant" advertisements.

Books on Sewage Analysis and Civil Engineering.

Sunderland.—Enquirer writes: "(1) What book will enable me to make simple analyses of water and liquids from sewage works, without a knowledge of chemistry? (2) Which is the best book on civil engineering dealing especially with viaducts, bridges and railways?"

(1) You will need at least an elementary knowledge of chemistry to undertake any kind of analysis. "Sewage Works Analysis," by Gilbert J. Fowler (P. S. King & Son, 2 and 4, Great Smith Street, Victoria Street, S.W., price 6s. nett) should serve your purpose. (2) We advise you to get these two books:—"Civil Engineering as applied in Construction," by L. F. Vernon Harcourt (Longmans, Green & Co., 39, Paternoster Row, E.C.; price 14s. nett)"; and Rankine's "Manual of Civil Engineering" (Charles Griffin & Co., Ltd., Exeter St., W.C., price 16s.).

MEANS OF ESCAPE IN CASE OF FIRE.*

By H. D. SEARLES WOOD, F.R.I.B.A.

THE history of the first enactment in this matter is rather curious. A retired military officer invented a balcony with a collapsible bottom which was worked by means of a lever, and when let down formed a staircase. The idea was taken up, and a Bill, called the Life and Property Protection Act, 1891, to make the provision of such escape compulsory, was introduced into Parliament and passed its second reading on May 29th.

This Bill provided :—

1. It shall be the duty of the owner or owners in fee or for life of every building constructed and used or intended to be used as a hotel, factory, manufactory, workshop, store, warehouse, theatre, tenement house, seminary, college, school, academy, hospital, asylum, hall, place of public resort or amusement, and of the trustees of association, society, college, academy, school, hospital, corporation or asylum, the guardians of the poor governing any workhouse, school, hospital, asylum, factory or workshop, and the owner or owners of all buildings 40ft. high or upwards in which four or more families reside, and the owner or owners of all places of business 40ft. high or upwards where the employees to the number of twelve or more sleep on the premises, and the owner or owners of all other buildings for any of the purposes herein above mentioned, to provide, maintain, and cause to be erected and fixed to the outside of said buildings iron fire escapes, being when in use of the form of stairs at an angle or incline of not less than 35 degs., and of such simple construction as can be used by a youth or old person of either sex, and as may be approved by the county council in their respective counties.

2. In all hotels, factories, manufactories, workshops, schools, seminaries, colleges, hospitals, asylums, halls, theatres or other places of public resort or entertainment, workhouses, or other places mentioned in this Act, the hallways and stairways shall be properly lighted when occupied at night, and there shall be kept posted in a conspicuous place in every sleeping room a notice printed in large bold type descriptive of such means of escape; and the officer or officers appointed by the county council for enforcing and carrying out the provisions of this Act shall have the right to designate the location and decide the number of escapes for each building, and shall grant certificates of approval to any person, firm, corporation, trustee, board of guardians and school board complying with the requirements of this Act, which certificate shall relieve the party or parties from the liabilities of fines or damages imposed by this Act.

3. Every person, firm, corporation, trustee, board of guardians and school board neglecting or refusing to comply with the requirements of the first section of this Act upon receiving thirty days' notice in writing having a copy of the first section of this Act endorsed thereon shall be liable to a fine of *five pounds* for each day after the expiration of the said thirty days until they have conformed with the requirements of the first and second sections of this Act, and such fine shall be collected as fines on summary conviction before a magistrate are now by law collected; and the county council may erect the necessary appliances on such building or buildings, and the cost and expenses of and incidental to the erection of such appliances shall be charged and held as a first lien against such property.

4. In case of fire occurring in any building not provided with such appliances in accordance with the requirements of the first and second sections of this Act, the person or persons, trustee or trustees, corporation, board of guardians and school board who or which neglect to provide such building or buildings with such appliances as aforesaid, shall be liable in an action for damages in case of death or personal injury being caused in consequence of such fire breaking out in said building or buildings, and such action may be maintained by any person or persons now authorised by law to sue as in other cases for injuries caused by neglect of duty.

5. The county councils in England, Scotland and Wales shall appoint and pay such number of inspectors for seeing that the provisions of this Act are carried out in their respective counties as they may deem necessary, and until the creation of such county councils in Ireland the inspection of buildings in that part of the kingdom shall be performed by the district and county surveyors.

6. Any person refusing to admit such inspector to enter their building or buildings for the purposes of this Act shall be guilty of an offence against this Act, and may be summoned before a magistrate, and may on conviction be fined any sum not less than *forty shillings* or more than *five pounds*, or may be imprisoned with or without hard labour for any term not less than *three days* or more than *one month*.

7. For any offence against the provisions of this Act not specially provided the party so offending may be summoned before a magistrate, and may on conviction be fined any sum not less than *forty shillings* or more than *five pounds*, or may be imprisoned with or without hard labour for any term not less than *three days* or more than *one month*.

8. Proceedings for enforcing penalties under the provisions of this Act shall be taken and conducted by the solicitor acting for the council of the county in which the offence is committed, and the costs of such proceedings shall be borne by such council, but the magistrate before whom offenders against this Act are summoned may on conviction direct them to pay such reasonable costs as he may think proper.

9. All Acts or parts of Acts inconsistent with this Act are hereby repealed.

10. This Act may be cited as Life and Property Protection Act, 1891.

While this Bill was before the House a fatal fire occurred in Cloth Fair, Clerkenwell, which drew the attention of the public to the serious condition as to safety of the employees in many of the factories and workshops, so that section 7 of the Factory Act, 1891, was passed and the Life and Property Protection Act was dropped.

The section is as follows :—

7. (1) Every factory of which the construction is commenced after the first day January one thousand eight hundred and ninety-two, and in which more than forty persons are employed, shall be furnished with a certificate from the sanitary authority of the district in which the factory is situate that the factory is provided on the storeys above the ground floor with such means of escape in case of fire for the persons employed therein as can reasonably be required under the circumstances of each case, and a factory not so furnished shall be deemed not to be kept in conformity with the Principal Act, and it shall be the duty of the sanitary authority to examine every such factory, and on being satisfied that the factory is so provided to give such a certificate as aforesaid.

(2) With respect to all factories to which the foregoing provisions of this section do not apply, and in which more than forty persons are employed, it shall be the duty of the sanitary authority of every district, as soon as may be after the passing of this Act, and afterwards from time to time, to ascertain whether all such factories within their district are provided with such means of escape as aforesaid, and, in the case of any factory which is not so provided, to serve on the person being within the meaning of the Public Health Act, 1875, the owner of the factory a notice in writing specifying the measures necessary for providing such means of escape as aforesaid, and requiring him to carry out the same before a specified date, and thereupon such owner shall, notwithstanding any agreement with the occupier, have power to take such steps as are necessary for complying with the requirements, and unless such requirements are so complied with such owner shall be liable to a fine not exceeding one pound for every day that such non-compliance continues. In case of a difference of opinion between the owner of the factory and the sanitary authority, the difference shall, on the application of either party, be referred to arbitration, and thereupon the provisions of the First Schedule to this Act shall have effect, except that the parties to the arbitration shall be the sanitary authority on the one hand and the owner on the other, and the award on the arbitration shall be binding on the parties thereto. If the owner alleges that the occupier of the factory ought to bear or contribute to the expenses of complying with the requirement, he may apply to the county court having jurisdiction where the factory is situate, and thereupon the county court, after hearing the occupier, may make such order as appears to the court just and equitable under all the circumstances of the case.

(3) All expenses incurred by a sanitary authority in the execution of this section shall be defrayed—

(*a*) In the case of an authority of an urban district, as part of their expenses of the general execution of the Public Health Act, 1875; and

(*b*) In the case of an authority of a rural district, as special expenses incurred in the execution of the Public Health Act, 1875, and such expenses shall be charged to the contributory place in which the factory is situate.

(4) In the application of this section to the administrative county of London, the London County Council shall take the place of the sanitary authority, and their expenses in the execution of this section shall be defrayed as part of their expenses in the management of the Metropolitan Building Act, 1855, and the Acts amending the same.

So far-reaching an enactment has rarely ever passed with so little notice being taken. When the Bill had been passed I called at the London County Council office to ascertain their views of what means of escape might reasonably be required, and I was informed that they did not know they were the authority to certify under the Act, and it was not until some time after the passing of the Act that any steps were taken by the London County Council, and it was not until they had obtained considerable experience in what could be done in rendering buildings reasonably safe that they issued their regulations, which are dated June 13th, 1899. Under these regulations a very large sum of money has been laid out in making buildings comply with the requirements—during the last ten years over 1,800 cases have been dealt with. In the meantime the Act remained a dead letter in most places outside the Metropolitan district.

The Factory Act of 1895 made no alteration in regard to section 7, but under section 10 gave the court of summary jurisdiction power to make an order requiring the provision of movable fire escapes, and in every factory where the room contained more than ten persons required the door to open outwards. In the Act of 1901 the power conferred by section 10 of the 1895 Act on courts of summary jurisdiction to order the provisions of movable fire escapes is not re-enacted.

Since the passing of the Factory Act of 1901 the London County Council have issued a revised edition of their Regulations :—

Provisions of Means of Escape in case of Fire.

By the provisions of section 14, 103 (1) (*d*) and 153 (1) of the Factory and Workshop Act, 1901, the duty is imposed upon the London County Council of seeing that each factory, workshop or laundry situated within the administrative county of London in which more than forty persons are employed is provided with such means of escape in case of fire for the persons employed therein as can reasonably be required in the circumstances of each case.

The Council on July 22nd, 1902, approved the following statement with reference to the requirements in respect of the means of escape in case of fire to be provided in accordance with the provisions of the above Act, with a view to assisting factory owners and others in making application for the Council's certificate, or in submitting proposals to comply with the Council's requirements in respect thereof :—*This statement must not, however, be taken as binding upon the Council, but only as a general guide or indication, since each case is, after full consideration of the varying circumstances, dealt with upon its merits: and nothing herein contained must be taken as in any way interfering with or derogating from the powers of the Home Office, the Council, the district surveyors or of any other authority whatsoever under the Factory Act, the London Building Acts or any other Act, or under any by-laws that may be made under section 15, section 153, sub-section (3) of the Factory and Workshop Act, 1901, or under any by-laws or regulations relating to the construction of buildings or otherwise, or as constituting any consent, sanction, allowance or permission under any such Act, by-law or regulation, but all such Acts, by-laws and regulations must be fully observed and complied with notwithstanding anything herein contained.*

Applications.

(1) Applications for the Council's certificate in respect of means of escape from new buildings, and applications with proposals to meet the Council's requirements in respect of means of escape from old buildings, should state—

(*a*) The number of persons employed or to be employed on the premises, specifying the number of males and females employed or to be employed on each floor.

(*b*) The trade carried on, or to be carried on, on each floor, with particulars of machinery, power, &c.

(*c*) In the case of existing buildings used as factories, whether the premises were erected before January, 1892, and in the case of workshops and laundries, whether erected before January, 1896.

(*d*) The name and address of the owner.

(*e*) Particulars of the occupation of the building if existing, and if any part is used otherwise than as a factory or workshop or laundry particulars of the tenancy of such part should be furnished.

(2) Applications should be accompanied by complete plans and sections drawn on the unglazed side of tracing linen to $\frac{1}{8}$in. or $\frac{1}{4}$in. scale ($\frac{1}{8}$in. scale preferred) and by a block plan to a small scale showing the premises and the surrounding buildings and thoroughfares, such block plan to have the north point indicated.

Number of Staircases.

(3) The number of staircases required, *inter alia*, depends upon the following circumstances :—

(*a*) The area of the building.

(*b*) The number of persons employed or which could be employed.

* A paper read before the Congress of the Sanitary Institute held at Manchester from September 9th to 13th, 1902, and published in the Journal of the Institute.

(*c*) The disposal of the workpeople.
(*d*) The alternative means of escape which may be available.

(4) It may, however, be laid down as a general principle (subject to the exceptions hereinafter mentioned) that distinct and separate alternate means of escape, exclusive of windows, loop-hole doors, &c., are required from each floor by one of the following means :—
(*a*) A second staircase in the same block.
(*b*) A proper staircase in another block, to which access is available on all the floors by proper openings in the party or division walls or by external communication.
(*c*) Open iron bridges where the blocks are not adjoining each other.

(5) The means of escape from each of the floor-levels should be placed as far apart as possible.

(6) In all cases where practicable some means of escape from the roof of the building to the roof of adjoining premises should be provided.

(7) In small and inextensive premises where not more than thirty persons are employed above the ground floor, and in some cases where it is possible to provide a staircase in a central position, one properly enclosed staircase constructed of incombustible materials may be accepted; but in all cases where only one staircase is provided some means of escape from the roof to the roof of adjoining premises *must* be provided.

Internal Staircases.

(8) Staircases should be placed next to an outer wall and must be so arranged as to deliver by means of a doorway (not less than 4ft. 6in. wide in the clear when the doors are open) direct into the outer air at the ground level into a public way or thoroughfare or some large open space. Staircases must also be so arranged that persons enter them from any floor level in the same direction as persons descending the staircases.

(9) Staircases must be properly lighted and ventilated by windows.

(10) Staircases, including landings and passages from one flight to another, must be enclosed with newel and enclosing walls not less than 9in. thick, carried up above the roof and ceiled with iron and concrete.

(11) Staircases must be constructed of incombustible materials, with solid square or spandrel steps, arranged in straight flights, without winders; each flight must consist of not more than fifteen steps, which must be supported at both ends on brickwork, and landings must be provided at the top and bottom of each flight and between the flights. The steps and landings must be of the same width as the staircase (see paragraph 14) and not less than 6in. thick. In the case of spandrel steps, however, the thickness at the smallest part may be as set out in paragraph 16.

(12) The treads of the staircases must be not less than 10in. wide clear of nosings, and the risers not more than 7½in. high.

(13) Staircases must be provided with handrails fixed upon both sides thereof and continued round the landings and chased into the ends of the newel walls.

(14) The width of the staircases is to be regulated as follows :—
(*a*) Where the premises are adapted for the employment of less than 200 persons on the floors above the ground floor the staircases must be not less than 3ft. 6in. wide.
(*b*) Where the premises are adapted for more than 200 persons on the floors above the ground floor, or where more than 100 persons are employed on any one floor above the ground floor, the staircases must be not less than 4ft. 6in. wide.

(15) Staircases must in all cases be connected with all floors and the roof by means of doorways of the same width in the clear, when the doors are open, as the staircases.

(16) Spandrel steps where used must be of the following thickness :—
(*a*) For 3ft. 6in. staircases, not less than 3in. thick in the smallest part.
(*b*) For 4ft. 6in. staircases, not less than 4½in. thick in the smallest part.

(17) All doorways to staircases must be fitted with doors of fire-resisting materials (solid teak or oak, 2in. thick, or other approved material) in two folds, hung so as to open in the direction of exit or to swing both ways clear of steps, landings, passageways and footways; such doors must be fitted with springs, weights or other approved appliances to close them after use, and, if required to be fastened during the time the workpeople are upon the premises, be fitted during such time with automatic bolts only, so that the doors open by pressure from the inside.

(18) In the case of old buildings * (in respect of which the Council is not required to issue a certificate) where there is a distinct and separate alternative means of escape provided to the satisfaction of the Council from each of the upper floors, the enclosed staircase may be constructed of teak or oak not less than 2in. thick, including the treads, strings, carriages, bearers, landings, joists and floors, the risers to be not less than 1in. thick, but no fir or pine must be used; and the enclosure to the staircase may be a solid partition of incombustible material at least 3in. thick; but such staircase must, in all other respects, be formed and arranged as required for a staircase for a new building as regards width, going, treads, risers, doors, handrails, &c. (see paragraphs 8-17).

External Staircases.

(19) In cases in which external iron staircases are accepted by the Council as means of escape, they must be constructed with dead bearings and without cantilever work.

(20) They must comply with the requirements of paragraphs 8-17 as regards width, going, width of tread, height of risers, doors, handrails, &c.

(21) They must deliver into the outer air at the ground level into a public way or thoroughfare or some large open space.

(22) Where an iron staircase is in general use the treads must be of approved non-slippery material as distinguished from perforated iron or chequered iron plates.

(23) All windows and similar openings by or near any such staircases must be protected with kiln wire, or glazed with a combination of glass and wire or other approved fire-resisting glazing.

General.

(24) Proper guard rails must be provided to the routes of escape on roof, &c., where necessary to the satisfaction of the Council.

(25) Clear gangways at least 3ft. 6in. wide must be kept up to and between all staircases, bridges and exits on all floors.

(26) All doorways and all passageways must, where of a less width than 3ft. 6in., be increased to that width.

(27) All doors usable as means of exit must be made so as to open in the direction of exit or to swing both ways clear of steps, landings, passageways, &c.

(28) All such doors must, if required to be fastened during the time the workpeople are upon the premises, be fitted during such time with automatic bolts only.

(29) Lifts should be enclosed all up with brickwork 9in. thick or with incombustible material of approved quality and thickness, and fitted with iron or other fire-resisting doors, unless, with the approval of the Council, such lifts be enclosed with fire-resisting material to a height of 4ft. above each floor-level, and above this with stout wire-mesh guard.

(30) Lifts must be kept at some distance from staircases, and must in no case be connected directly therewith by means of openings or otherwise.

(31) All windows on the floors above the ground floor facing the public way, street, thoroughfare or open space must be made to open easily at sill-level to a sufficient height and width to allow a full-grown person to pass through in case of need.

Under section 15 of the Factory Act of 1901 a council may make by-laws providing for means of escape in case of fire in any factory or workshop irrespective of the number of persons employed. The provisions of the Public Health Act with regard to the making of by-laws are to apply to the making of these by-laws, and they will accordingly require to be confirmed by the Local Government Board before they can come into operation. Up to the present the Local Government Board have received no by-laws on this subject for approval. As the Act requires that the certificate given by the council must specify in detail the means of escape provided, it would seem desirable as a guide to the officials of the councils that by-laws should be made so as to make the certificates uniform in application.

To meet a difficulty which arose under the previous Acts in cases where a building was divided up into a number of separate factories or workshops each with a separate occupier (so that though more than forty persons were employed in the building each of the separate factories or workshops might be exempt from the provisions of the Act as to fire), it is provided in the Act that for the purposes of these provisions the whole of a tenement, factory or workshop is in future to be counted as a single factory or workshop, and the owner is to be substituted for the occupier. There is still great difficulty in arranging satisfactory means of escape where a portion of the premises is occupied in such a manner as not to come under the Factory Act. The owner is unable to carry out the improvements without committing a trespass on the premises which are outside the Act.

New York Regulations.

The fire-escape regulations in New York are as follows :—

Every dwelling-house occupied by or built to be occupied by three or more families;

And every building already erected or that may hereafter be erected more than three storeys in height occupied and used as a hotel or lodging-house, and every boarding-house having more than fifteen sleeping rooms above the basement storey;

And every factory, mill, manufactory or workshop, hospital, asylum or institution for the care or treatment of invalids;

And every building three storeys and over in height used or occupied as a store or workroom;

And every building in whole or in part occupied or used as a school or place of instruction or assembly;

And every office building five storeys or more in height:

Shall be provided with such good and sufficient fire escapes, stairways or other means of egress in case of fire as shall be directed by the Department of Buildings;

And said Department shall have full and exclusive power and authority within said city to direct fire escapes and other means of egress to be provided upon and within said building or any of them.

The owner or owners of any building upon which a fire escape is erected shall keep the same in good repair and properly painted.

Incumbrance on Fire Escapes.—No person shall at any time place any incumbrances of any kind whatsoever before or upon any fire escape, balcony or ladder.

Another section specifies minimum sizes and methods of construction for these balconies, which are of wrought-iron, as open and as light as their purpose will permit, with vertical ladders, the lowest section of which is removable to prevent use by thieves as an approach from the street.

Other sections provide for automatic sprinklers and stand-pipes and hose for factories and stores and some other buildings. You will observe that the application of this

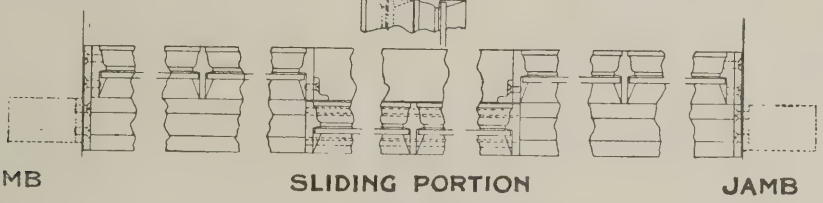
* By the term "old buildings" is meant those of which the construction was began before—in the case of factories, January 1st, 1892; in the case of workshops and laundries, January 1st, 1896.

law to dwellings begins when they are occupied by three or more families. This is intended to make it apply to the tenement and flat houses, especially those of the poorer classes, and to prevent the law from being inconsiderate toward buildings less crowded than these. It gives large power and discretion to the Department of Buildings which has not seemed at all times wise.

In regard to factories there are special inspection laws administered by a commission including representatives of the workpeople, which continually supervises such buildings, and no doubt does good work by its own regulations and by its enforcement of others.

The building laws also stipulate the number of staircases according to the size of a building, and in new buildings the fire escapes are often made more substantial and available than the law demands, being built with inclined stairs instead of the vertical ladder. (Mr. Searles Wood illustrated this by an upper floor of a hotel having this feature and also illustrating the operation of the law in regard to the number of staircases and their separation from one another and from the elevators, which regulation applies not only to hotels but to stores, factories and lodging-houses. It demands two lines of stairs continuous from cellar to roof and remote from each other for buildings exceeding 2,500ft. and not exceeding 5,000ft., and an additional continuous line of stairs for each additional 5,000ft. of area.)

Of course, the law stipulating that buildings must be fireproof if more than 75ft. high applies to factories, a lesser limit being made for certain other buildings; and the fire escape and stair regulations apply whether a building is fireproof or not, the danger from smoke or panic differing but little, in fact, in the two classes of buildings.



It should be remembered that in America the largest factories are often found in new and comparatively small villages. A new industry or a new enterprise frequently creates a new village by the erection of enormous factories in places where municipal and local regulations exist and where the State laws do not apply, and in other cases a small old town getting along very well with practically no building regulations at all is rapidly changed into an industrial centre; and it is not until very much building has been done that the local government seeks to regulate these things.

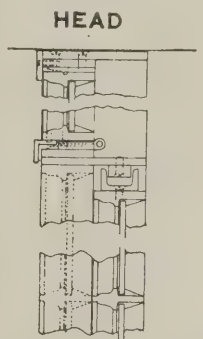
Here the factory inspection laws in New York and some other States apply, of course, and something is done, but recently there has been a good deal said of the necessity for a State building law to provide for such cases as have been mentioned, and in a little while, no doubt, there will be something of the kind; but at present, if it is proposed to erect a building in a city of 100,000 persons it is usually found that you can do pretty nearly what you please. Sometimes you must file a set of plans with some officer who is not very competent to understand building construction, and sometimes not even that formality is required. Larger cities generally have local building regulations following those of New York, except when local conditions require modifications.

Regulations in Vienna.

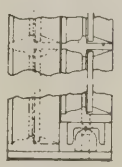
The regulations relating to fire escapes in the city of Vienna are as follows:—

Stairs.—In every new building free communication by means of completely fireproof stairs must exist from the garret and from all departments to the house door respectively to the outside and to the cellar. These conditions require, according to the extent of the building, the construction of one or more fireproof main stairs. These stairs must in one-or two-storey buildings have a clear width of at least 1·10 metres, and in buildings with more storeys at least 1·10 metres in the two upper storeys and in the lower ones at least 1·25 metres. In main stairs the straight steps must not be less than 29 centimetres wide, and the width of pointed steps must, at a distance of 40 centimetres from the stair wall, be at least 29 centimetres and at the points at least 13 centimetres. If in a three- or four-storey building one or more by-stairs exist besides the main stairs, these side stairs may serve as main stairs for the two upper storeys if they are constructed of fireproof material, and have a clear width of at least 1·10 metres. The height of the steps must not exceed 16 centimetres in the different storeys and 20 centimetres in the cellar and garret stairs. The stairs must be provided with hand rods, and in the free places with railings of at least 1 metre in height. In fliers these railings must be provided with appliances for preventing the sliding down upon the railings. In the staircases suitable devices for the setting down of burdens must be provided; in four-storey buildings such devices must be in the first and third storeys, and in three-storey buildings at least in the first storey. In special cases or in public buildings or with monumental stairs the Board of Works may dispense with the obligation of providing these devices and the hand rods. The stair landings, as well as the corridors in the extent of the staircase, must be completely constructed of fireproof material. By-stairs for the connection of certain apartments which are also accessible from the main stairs are not subject to above conditions. The employment of trap-doors (horizontal doors) for stair descents is not permitted.

Skylights.—If a staircase is to receive its light from a glass roof the frame of the latter must be of iron, and must rest on all sides upon masonry rising over the surface of the roof. When other places are to be lighted by skylights all connections with the garret liable to catch fire must be carefully avoided. Every glass roof is to be provided with a ventilator, and if necessary the latter again with a guard or grate for safety.



Corridors.—Free corridors (situated on the outside of the walls of a building), if they form the only communication of the apartments with the main stairs, must be built throughout of fireproof materials, and must have a clear width of at least 1·10 metres. Such corridors must be provided with fireproof railings at least 1 metre high or with glass partitions. Open corridors on the top floor must be provided with a fireproof roof isolated from the roof of the building.



Garrets.—The garret room is to be closed by an iron door in an iron or in a stone frame. The establishment of lodgings in the garret room is without exception prohibited.

Party-walls.—Roofs of more than 30 metres length are to be partitioned by walls in the entire width of the garret. These party-walls must be at least 15 centimetres thick, and if necessary strengthened by pillars; they must project at least 15 centimetres over the surface of the roof, and must completely separate the rafters. Each of these party-walls must be provided with an iron door in an iron or stone frame; these doors are to be made so as to close automatically, and their locks must open easily from either side by knobs or handles.

Part Seventh—Industrial Buildings.—Buildings which are considered as Industrial Buildings.—By industrial buildings are understood, contrary to dwellings, all factories, workshop buildings and magazines. Industrial buildings are separated into isolated and not isolated, according to their situation.

Special Regulations for Isolated Industrial Buildings.—The builder and superintendent are absolutely responsible for the observation of the following regulations and precautions:—

(1) In every industrial building consisting of more than one storey a fireproof safety stair in a brick case with fireproof covering must be provided offering a free exit from all parts of the building immediately to the outside. In extensive factories several such stairs must be provided in such manner that no point of the factory is further distant from a safety stair than 40 metres. If a stair of this kind is not intended for the use of more than fifty persons it must, if straight, have a width of 1·25 metres; if it is winding it must have a width of 1·50. For every fifty people in addition the width is to be increased by 15 centimetres, or the number of stairs must be increased accordingly. For greater convenience these stairs and staircases may be built on the outside of the factory upon the isolating space. Besides these fireproof safety stairs, wooden stairs are permitted according to requirement. For localities which are not properly workshops, and which are frequented only at times or in which only a few persons are employed, wooden stairs may also be used.

It will be seen from these regulations that they apply to other buildings as well as factories and workshops, and cover nearly as many cases as were contemplated in the Bill entitled the Life and Property Protection Act, 1891.

Fire Offices' Rules.

The Fire Offices Committee, which represents the whole of the Tariff Fire Insurance Offices, have issued the following rules for standard fire-resisting buildings:—

Height and Cubical Contents.—1. Height not to exceed 80ft. measured from the lowest point of the land level or ground line of the site on which the building stands to the level of the highest part of the roof.

2. Cubical contents of any one compartment not to exceed 60,000 cub. ft.

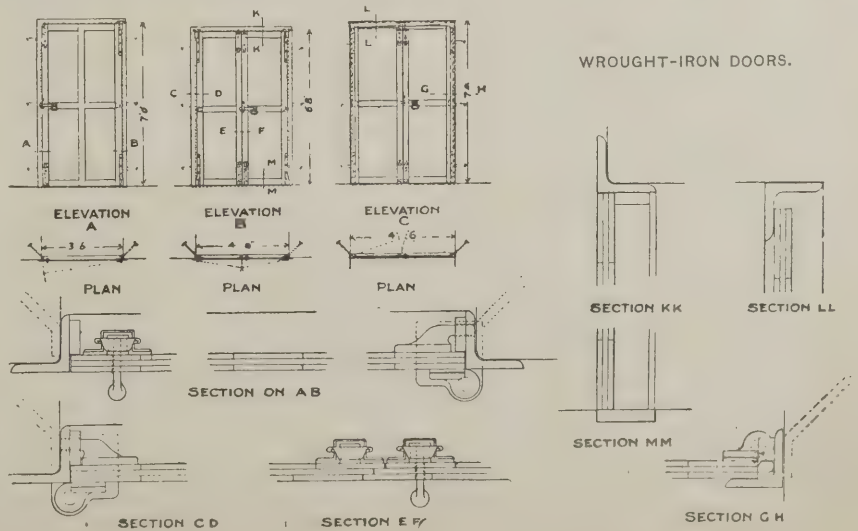
N.B.—In computing the cubical contents of a compartment, the floor area, excluding doorway and window recesses, and the actual height from floor to ceiling are to be measured. Due deduction may be made for a sloping roof.

Walls and Partitions.—3. Brick, terra-cotta and (or) cement-concrete composed of broken brick, burnt ballast, furnace slag, clinker or other similar hard and burnt material.

4. No external area or party-wall to be less than 13in. thick in any part, or if of concrete 20in.

N.B.—Stone used externally only as ashlaring or fencing, with a backing of brickwork not less than 13in. thick, and for dressings, sills, string-courses and cornices allowed.

5. All internal partitions to be of incombustible material, excepting only office





enclosures of hard non-resinous wood with or without glazing.

6. If there is any building adjoining, the dividing or party-wall to extend at least 3ft. above the roof of the fire-resisting building.

Flues.—7. All flues to be built of brickwork no part of which towards the interior of the building is to be less than 9in. thick, and all furnace flues to be lined with firebrick throughout for a distance of at least 20ft. from the furnace. No timber or woodwork to rest in or be plugged into the brickwork of any flue.

Openings in Walls.—8. The total superficial area of openings in each external or area wall of any storey above the ground storey not to exceed one-half of the area of the wall (measured as to height from floor to ceiling of the storey in which the openings occur). All loop-hole or teagle doors and frames and window-frames and sashes to be of iron or other hard metal. All windows above the ground storey to be glazed with glass not less than ¼in. thick in sections not larger than 2ft. super., or wired glass not exceeding 1in. mesh in sections not larger than 4ft. super.

9. Every window or other opening above the ground storey opposing (whether directly or diagonally) and within 20ft. of any window, skylight or glazed or other opening in any other building (whether such latter window, skylight or opening be protected or not), or overlooking (whether directly or diagonally) and within 20ft. of the roof of any building, to be protected by "fireproof" shutters or "fireproof" doors.

Floors.—10. Brick arches, terra-cotta, fireclay or concrete as above described, the floor being in no part less than 6in. in thickness, and carried on metal joists, girders and columns, or brick walls or piers.

N.B.—Floors of wood not less than 9in. thick ceiled with plaster on metal lathing and with the floor boards laid on the bearers without intervening space allowed.

11. Wooden flooring laid on concrete allowed provided there is no space between the wood and the concrete. Wooden fillets not exceeding 2in. deep permitted if bedded flush in the concrete.

12. Scuppers to carry off water, the opening of each of which shall not be less in area than 21in. super., to be provided in the external walls to each floor above the ground storey at intervals of not more than 12ft.

N.B.—In buildings within the city of London or within the area controlled by the London County Council scuppers are not essential.

Roofs.—13. Roofs to be entirely of the incombustible materials as described for floors in Rule 10, except that 4in. be substituted for 6in. in thickness.

NOTE.—*Glass not less than ½in. thick in sections not exceeding 36in. super., and wired glass not exceeding 1in. mesh in sections not exceeding 144in. super., in either case set in metal, shall for the purpose of this rule be deemed incombustible.*

Outlets on to roofs rendered necessary to satisfy the requirements of the Factories and Workshops Acts permitted, provided that all doors and frames be of iron or cased in iron plate at least ⅛in. thick, and that they be self-closing.

Protection of Structural Metalwork.—14. All columns or stanchions to be covered with brickwork or porous terra-cotta (at least 2in. thick), or with cement, concrete or plaster at least 1½in. thick, keyed into metal supports and protected by a metal guard up to a height of not less than 4ft. from the floor where cement, concrete or plaster only used.

15. Girders, joists, lintels and all structural metalwork (other than columns and stanchions, but including framework of roofs), where not covered with brickwork, to be completely encased in porous terra-cotta at least 2in. thick, securely anchored, or cement, concrete or plaster at least 1in. thick keyed into metal supports.

16. Space must be left at the ends of girders and joists to permit of expansion.

Linings and Ceilings.—17. No lining of wood or textile fabric to any part of the walls, partitions, ceilings or roof.

Floor Openings.—18. No openings through any floors allowed except as follows:—

(*a*) Holes to admit driving shafts, pipes and iron or earthenware tubes for electric conductors. Shafts to fit closely in metal collars, and all pipes and tubes to be cemented round the full thickness of the floor.

(*b*) Staircases and hoists of which the enclosures are constructed entirely of brick or cement-concrete as above described at least 9in. thick, with a regulation fireproof door to every opening.

N.B.[1]—Stairs and landings within said enclosures to be constructed of incombustible material.

N.B.[2]—Where the building is within the city of London or in the area controlled by the London Country Council, hardwood doors to openings may be allowed instead of fireproof doors.

N.B.[3]—Where the staircases and hoists extend to the top floors they must have a glass roof protected externally with strong wirework, and the enclosing walls must be carried through and 18in. above the roof of the building.

In factories and workshops in the area controlled by the London County Council a glass roof protected as above is only to be provided in cases where the enclosing walls and staircases are carried through and 18in. above the roof of the building, and also above the roof of the adjoining premises. Otherwise the roof must comply with the requirements of the London County Council.

(*c*) Belting and rope races enclosed as for staircases and hoists.

Shafting through Walls.—19. Shafting where passing through walls to fit closely into wall, or have wall-boxes closed with iron plates not less than ¼in. thick, leaving no open space.

Pipes and Electric Conductors.—20. All pipes in the building, except water pipes not exceeding 1½in. in diameter, to be of hard metal. No wooden casing to be used for enclosing electric conductors.

Communicating Compartments.—21. Two or more compartments, each constructed in accordance with these rules, may communicate, whether by double fireproof doors or otherwise, provided that their aggregate cubical contents do not exceed 60,000 cub. ft.

22. Two or more such compartments whose aggregate cubical contents exceed 60,000 cub. ft. can only be allowed to communicate across a fireproof compartment built up from the basement with walls of solid brickwork, and constructed in all other respects in accordance with these rules so far as the same are applicable, and having all openings protected by fireproof doors at least 6ft. apart.

23. Except as above, no communication allowed between a compartment constructed in accordance with these rules and any other building or compartment.

To illustrate the regulations of the London County Council I give a block of two factories belonging to the same owner (see plan on this page); they have the London County Council staircase in each building, which in each case is carried up to the roof, and by means of iron staircases either staircase can be used as alternative means of escape.

The arrangement of the closets on the landings is the usual one in London factories where space is limited, as it gives the lobby required by the Factory Act and the external windows required by the Public Health Acts. Each closet is treated as a separate room, and has its own 2ft. super. window, though usually the divisions do not extend up to the ceiling. The sink is placed in the centre division to help light the staircase, and often the closet doors open in the space, which perhaps is better, as in a panic the people might be pushed into the closets, where the doors are on the side of the landing—no door is allowed to open over the landing, so that the doors would give to pressure. The third staircase on this place is made with enclosing and newel walls of Jhilmil lathing and granite plaster carried on iron framing, which also supports the staircase of 2in. solid oak; this form of staircase is similar to that described in section 7 of the regulations.

To illustrate the rules of the Fire Offices Committee I give a plan (see opposite page) of a factory designed by Mr. Lewis Solomon, F.R.I.B.A. This shows the 6ft. wide fireproof lobbies to the staircases and lifts that these regulations require, which are an advance on the London County Council

regulations; the other arrangements in the factory are very good, the position of the lifts in relation to the staircases is much better than in the other plans, and the water-closets are not off the staircases; a mess-room is provided off the staircase so that the hands can take their meals away from the workshops.

The illustration on p. 101 shows the best method of making an iron-frame window open in accordance with the regulations; it runs on an iron bar and, unless in a very exposed position, is sufficiently water-tight.

The iron doors to the lift enclosure are also shown on p. 101, with the different hangings.

As these fireproof staircases have to discharge into the street when the sites of factories have only one frontage and the lighting of the premises is principally derived from this frontage, it is a serious consideration to take 11ft.—the least width a brick-enclosed staircase can be made—out of each frontage; a joint staircase, to be used in common by two factories, has been allowed by the London County Council, and as this quesion is being raised every day this principle will have to be admitted, and may be extended. I am of the opinion that, under certain conditions, balconies on each floor communicating with a public staircase serving several factories would be a reasonable thing to allow.

I have tried to show what the most recent practice in providing means of escape from fire in accordance with the provision of the Factory Act of 1901 is, and, in conclusion, I trust that the information collected may be of some little use.

[The American buildings being very different to any we have here, Mr. Searles Wood gave a plan of one of them (which we are unable to publish but which will appear in the Journal of the Sanitary Institute). The following particulars may, however, be given:—

The corridors are lighted partly by elevator shafts, which are always constructed in open grille work or glazed grille work; also at the staircases and at the end parlours, which are practically continuations of the corridors without intervening doors. The fact that the corridors and halls are warmed equally with the rooms make the doors of less importance, and, except in rooms strictly private, the doors habitually stand open or are omitted. Then, over every door is a transom light of glass, which lights the corridor and affords cross-ventilation in the rooms; in summer this is essential. In hot weather all windows and these transoms are wide open, and whatever breeze there is comes clear through the building. The closets have sashes high up in the wall to afford light and ventilation, as the transoms do to the walls.

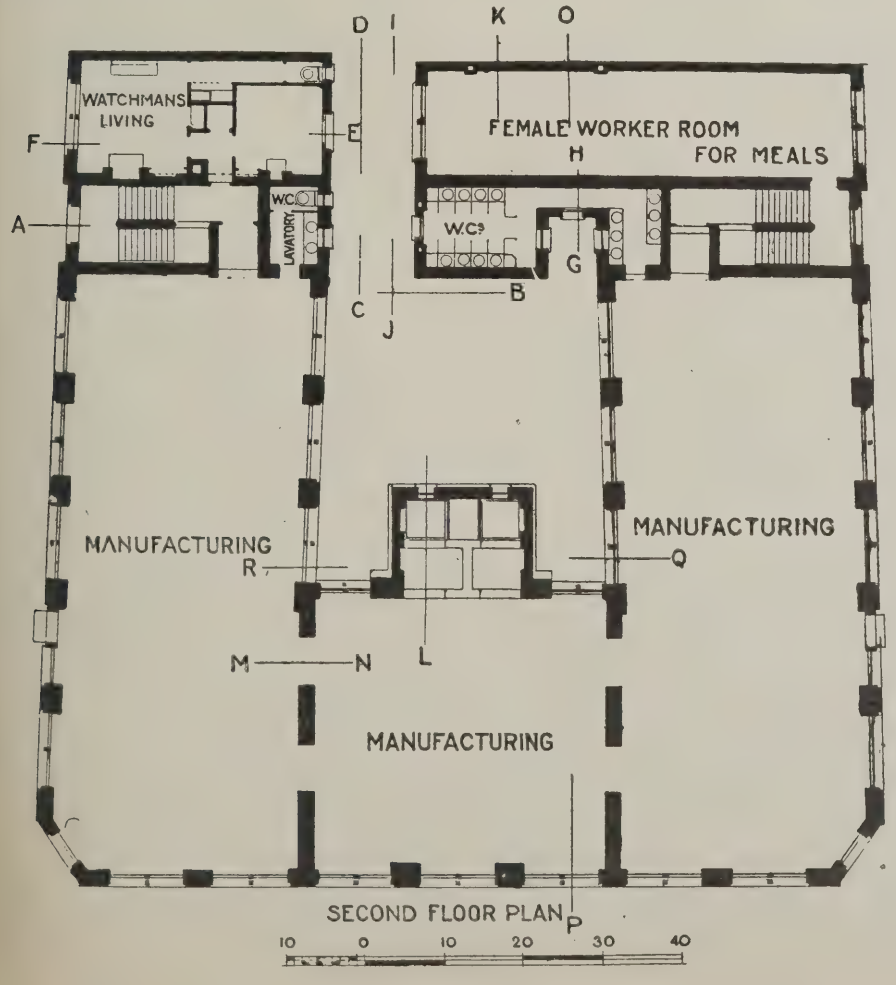
A shaft, 10ft. by 8ft., ventilates the kitchen, which is itself 100ft. long, with all departments, from the butcher's shop to the ice-cream pantry, separated by wire screens, each department having its refrigerator system cooled by brine from the engineer's department. All these being in the basement would get very warm (in some buildings the heat is almost intolerable); to obviate this the large shaft is used.

Other vents are provided for the dining-rooms and restaurants and the laundry and elevator machinery; the latter to check the tendency of the oily smell to rise in the elevator shaft proper.

The heating is by steam to direct radiators placed in each room. In winter this steam is used for power purposes first at 90lbs. pressure and then reduced to 5 or 6lbs. sent through the radiators; in fact, these act as condensers to the engines.

In summer the steam after use in the engines is condensed in feed water, and in some parts wasted. The power system is electric, three generators similar and with parts interchangeable; water current, which runs the elevators and all the other machinery, as well as lighting the building. The steam is made in two water-tube boilers under the side walk.

A pantry is provided on each floor for the use of servants for the distribution of drinking water and other sundries and service in private rooms. Ducts and wires are provided for the main cables of the lighting system, with their switch-boxes, fuses, &c., and for the telephone and bell-wire mains. To all of these things frequent access is necessary, and they are so placed in shafts adjoining the staircases.]



SECOND FLOOR PLAN

New Patents.

These patents are open to opposition until October 27th.

1902.—Surveying Instruments.—3,862. J. R. Hagan, North Lamoine, Maine, U.S.A., and others. The instrument consists of a base rule having a slide on it that carries the perpendicular rule, while at one end of the base rule is a spirit-level, a protractor and a hinged angle rule. This last crosses the perpendicular rule, and the two can be held together at any point by a clamp. The instrument may be used with or without the supporting staff.

Waterproof Wallpapers.—10,510. H. W. Sanderson, Hazeldene, 57, Harvard Road, Chiswick, and E. E. Humphrey, 51, Mansfield Road, London, N.W. The paper is exposed to the action of a solution of formaldehyde, or tannin, or chromic acid and chromates. This renders it washable.

Telescopic Levelling Staves.—15,165. J. B. Young, 46, Dean Street, Newcastle-on-Tyne. A flexible tape is attached to the outer case and is graduated so as to read continuously with the latter. It passes over a roller down into the inner length and has a weight on the end to keep it taut. The object of the invention is to enable readings to be made in confined spaces, where it is only possible to partly extend the staff.

The following specifications were published on Thursday last, and are open to opposition until November 3rd next. A summary of the more important of them will be given next week. The name in italics is that of the communicator of the invention.

1901.—16,738, Mobus, pile drivers. 16,954, Keane, cowls. 17,048, Lake (*Boullet*), smoke-consuming apparatus. 17,106, Lacroix & Brisselet, keyhole protectors. 17,296, Strube, grooved tiles for roofs. 18,061, Schofield, excavator for trenches, cuttings, &c. 18,518, Tournant, portable sheds or roofs. 19,052, Foxworthy & Moore, boiler flue arches. 20,618, Saunderson, pumps. 20,769, Crichton, pipe-testing machines. 21,147, Bradley, high-pressure water taps. 21,148, Bradley, high-pressure water taps. 21,235, Power, tiling of grates. 21,340, Nickerson, keys for adjusting the joints of mathematical compasses, &c. 21,502, Riddel & Robertson, jambs of metal mantel register grates. 21,829, Rhodes & Gaunt, syphonic flushing apparatus.

1902.—2,496, Hine & Waters, chimney cowls. 2,798, Gunn, chimney top and ventilator. 14,518, Pfister, impregnating and dyeing timber. 16,181, Brandell, drawing compasses. 16,259, Adams, kilns.

A Board School Competition.—The design of Mr. D. Forbes Smith, A.R.I.B.A., under motto "X," has been unanimously selected by the Kirkcaldy and Dysart Landward School Board for a new school at Boreland in a competition limited to the architects of the district.

Keystones.

Mr. Alfred Waterhouse, R.A., is improving in health steadily, and he is able to take frequent drives in the district around his Berkshire home.

A New Baptist Church in Streatham, S.W., has been erected in Lewin Road from designs by Messrs. George Baines, F.R.I.B.A., and R. Palmer Baines, of 5, Clement's Inn, Strand, W.C. It is Decorated Gothic in style, with a square tower and spire at one side. The facings are of red bricks and the dressings of white Costessey stone. The roof is open-timbered, of hammer-beam form. The cost has been about £3,100, exclusive of seating. Messrs. Johnson & Co., of Wandsworth Common, were the builders.

Excavations in Tinos.—M. Demoulins, a Belgian, has recently made some excavations at Kionia, somewhat west of the modern town of Tinos on the island of that name, and has discovered the remains of the ruins of the temple consecrated to Neptune and Amphitrite, the portico of which he has found some 40 metres from the sea, measuring 22 by 4 metres, also a portion of the actual temple itself, to the extent of a building of 20 by 15 metres, surrounded by a basement. He also reports numerous inscriptions and figures of sea monsters.

Sanitary Awards.—Mr. John Jones, of Church Street, Chelsea, S.W., has received the following awards (the highest in their respective classes) from the recently held Sanitary Institute Congress and Health Exhibition at Manchester, for articles of his manufacture:—A silver medal for patent automatic airtight double-seal manhole covers; and bronze medals for patent air inlet ventilators, the "Carlyle" wash-down pedestal closet in vitrified stoneware, and a patent brass socket for connecting waterclosets to soil-pipe branch.

The New Rome.—His Majesty's Consul at Rome, in his latest report, remarks that visitors who have not been in Rome for the past twenty years can hardly recognise it. Suburbs have risen over the vineyards outside the city walls; old quarters have been superseded by large and commodious buildings; the Tiber is permanently embedded all along its urban course between two gigantic embankments on which fine houses, overlooking the river, have been constructed; solid granite bridges, meant to defy the ravages of time and the impetus of the once dangerous Tiber, have been thrown across the two embankments; new and wide thoroughfares have been opened; in one word, the city has been completely modernised and rendered in all respects quite sanitary, as shown by the returns of mortality.

The South-western Polytechnic, Manresa Road, Chelsea, has commenced its autumn term. The day school pays special attention to fitting students for their work in after-life, third- and fourth-year boys being allowed to devote their attention to such subjects as mechanical, electrical and civil engineering, building trades, chemical trades, &c. The day college for men above the age of sixteen has a course extending over three years. The term commences on Monday, September 29th. The term for evening classes commences on Monday, September 22nd, and the technical subjects embraced are very comprehensive. Mr. Banister F. Fletcher is the lecturer in architecture, Mr. E. L. Bates in brickwork, Mr. T. Edwards in carpentry, Mr. T. J. Evans in building construction, Mr. S. C. Fairchild in plumbing, Mr. A. Foster in plastering, Mr. W. H. Knight in sanitary science, Mr. J. L. Luckis, F.S.I. in builder's quantities, and Mr. L. C. Radcliffe in house decoration, painting, &c.

A Vestry Hall and Offices at Norton, Sheffield, are to be erected from plans by Mr. Joseph Norton, architect, of Norton Woodseats, Sheffield, at an estimated cost of £5,000, inclusive of site and furniture.

Mr. F. W. Bullock has been appointed building inspector to the Repton Rural District Council for three years to examine and report upon plans sent in for the approval of the Council under the by-laws relating to new streets and buildings.

St. James's, West Malvern.—This large stone mansion has been altered into a school under the direction of Mr. Mark H. Judge, and a pamphlet describing and illustrating the buildings and the grounds has been reprinted from "The Bungalow" (7, Pall Mall, S.W.), price 1s. nett. The letterpress is by Mr. Max Judge, who took some of the photographs reproduced, the remainder of them being by Messrs. Bedford, Lemere & Co.

The School of Art Wood-carving, South Kensington, which now occupies rooms on the top floor of the new building of the Royal School of Art Needlework in Exhibition Road, has been reopened after the usual summer vacation; and some of the free studentships maintained by means of funds granted to the school by the Technical Education Board of the London County Council and by the Drapers' Company are vacant.

A New Cottage Hospital at Exmouth is being erected facing Marpool Lane. The building will have a frontage of 110ft., and comprise, on the ground floor, two main wards, 30ft. by 20ft., providing accommodation for six beds each, special wards, convalescent rooms, surgery and surgeons' room, matron's room, &c.; bedrooms for nurses and matron on the first floor, and kitchens and offices, with serving lifts in connection with the ground floor and basement. A detached building will provide a mortuary and post-mortem room. The walls will be of local bricks and the roof covered with Broseley tiles. A wide verandah will extend along the greater part of the main front. The cost will be between £3,000 and £4,000.

London County Council Camberwell School of Arts and Crafts.—This school, which is situated in Peckham Road, S.E., will be reopened for the sixth session on Monday, September 22nd. The classes in architecture and building construction are directed by Mr. A. Wickham Jarvis, A.R.I.B.A., while those in masonry, plasterers' work, &c., are directed by other capable instructors. Mr. Albert Toft supervises the modelling class. When the school extension, the foundation-stone of which is to be laid next month, is completed, it is hoped that classes will be formed in brickwork, carpentry, plumbing, wrought-iron and stained-glass work, &c. Full particulars may be obtained from Mr. C. H. Johnson, the secretary of the school.

Dunstaffnage Castle Restoration.—An appeal is being made to Scotsmen to see that their old castle of Dunstaffnage, where the Coronation stone was kept for centuries, does not fall into ruin. One tower has fallen. The roof is gone from the keep, which was inhabited up to 1810. Each year's rain and frost does further damage to the walls. The gate money, sufficient at Carisbrooke to keep the castle there free from further decay, cannot be raised at Dunstaffnage, the ordinary tourists not taking sufficient interest in Scots national history. A sum of £3,000 or £4,000 would guarantee keep and walls for a long time, and would provide a museum, like that at Carisbrooke, of documents and relics connected with the history of the castle, attractive enough to provide entrance fees sufficient for future upkeep.

Builders' Notes.

Mr. John Biscomb, senior partner in the firm of J. & T. Biscomb, builders, &c., of York, died last week at the age of sixty years.

A Fatal Crane Accident occurred last week at the quarry belonging to Messrs. Akeroyd & Sons at Southill, near Batley. While a crane, with a lifting capacity of 25 tons, was drawing a stone weighing between 10 and 12 tons it collapsed. The boiler and crane fell to the bottom of the quarry, killing 4 men and injuring 2 others.

The Smoke Nuisance: What the London County Council did last year.—Last year 819 reports of cases of smoke nuisance, of which 541 were serious in character, were sent to the Borough Councils by the authorities at Spring Gardens. Statutory notices were served in 475 cases, and legal proceedings taken in 119; while the number of cases in which convictions were obtained was 106, fines being imposed to the amount of £550.

A Large Timber Fire.—A great fire occurred last week in the large wharf at Victoria Docks occupied by the Acme Wood-Flooring Co., many thousands of tons of valuable timber being destroyed and over £100,000 worth of damage being done. Smoke was first noticed rising from the roof of a large shed containing a quantity of wood-cutting machinery. Eighteen engines, three river-floats and 200 firemen were engaged in fighting the flames, which had spread to the huge stacks which surround the building, over an area three acres in extent, and all were totally destroyed. The loss is fully covered by insurance.

A Builder Accidentally Killed.—A Kidderminster jury recently found that the death of Mr. James W. Jones, a well-known builder of that town, was due to accidental causes. While superintending operations on a high scaffolding some weeks ago Mr. Jones slipped and fell to the ground, receiving injuries from which he died. A vague suggestion of some mysterious circumstance in connection with the fall had been made, prompted apparently by the fact that Mr. Jones was the secretary to the Master Builders' Association, and therefore took an active part in the recent dispute between employers and men, concerning which there has been much bitter feeling. At the inquest, however, there was no evidence to show that death was other than purely accidental.

A Building at Shipley collapsed last Thursday. The Junction Hotel, situated at the junction of Westgate and Commercial Street, was being entirely rearranged in the interior. Messrs. Rhodes Brothers, contractors, Shipley, had for some weeks been busy carrying out the alterations according to the designs of the architect, Mr. Winn. Scarcely anything of the interior was left standing, just one room being left intact so that business might not be completely stopped. That portion of the hotel abutting on the premises of the Windhill Co-operative Society had been added to the original building, having formerly been used as a shop. It was in this part of the hotel that the accident happened. Eight or nine men were at work rebuilding a displaced portion of the wall at the end of the building adjoining the Co-operative Hall when the end wall fell and brought down with it the roof covering that portion of the building. Five of the men were struck by falling timber and masonry, but two escaped with only very slight injuries. The breaking or crumbling of an old beam of large size that supported the end of the building, and which itself had been propped up, is supposed to have been the cause of the accident.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDERS MAY BE OBTAINED.
	BUILDING:		
Sept. 25	Rainhill—W.C. Block	Lancs Asylums Board	J. Gornall, Clerk, Rainhill Asylum.
" 25	Bristol—Repairs, &c.	Municipal Charities Trustees	Foster & Wood, 35 Park Street, Bristol.
" 25	Brynnan, Wales—School	Llanharran Urban District School Board.	L. V. Evans, Court House, Pencoed.
" 25	Chelmsford—Laboratories, &c.	Essex County Council	F. Whitmore, County Architect, Duke Street, Chelmsford.
" 25	Aston Manor—Stabling, Workshops, Offices, &c.	Urban District Council	G. H. Jack, Engineer, Council House, Albert Road, Aston Manor, Birmingham.
" 25	Birkenhead—Baths	Corporation	C. Brownridge, Borough Engineer, Town Hall, Birkenhead.
" 25	Coventry—Rebuilding Inn	Phillips & Marriott, Ltd.	H. W. Chattaway, Architect, Trinity Churchyard, Coventry.
" 25	Hove, Sussex—Repairs		Mr. Cook, 53 Elm Grove, Hove, Sussex.
" 25	Hatton, near Warwick—Building Materials	Warwick County Lunatic Asylum	Master, County Lunatic Asylum, Hatton, near Warwick.
" 25	Beccles—Alterations and Additions to Town Hall	Corporation	Town Clerk, Town Hall, Beccles.
" 25	Monmouth—Additions and Alterations to Workhouse Buildings	Union Guardians	T. A. Williams, Clerk to Guardians, Monmouth.
" 26	London, N.W.—Additions and Alterations to Public Library	Willesden District Council	J. Cash, 28 Newman Street, Oxford Street, W.
" 26	Ashford, Middlesex—Enlargement of Committee Room	West London School District Managers.	F. W. Roper, 9 Adam Street, Adelphi, W.C
" 26	Bo'ness, Scotland—Town Hall and Library		Peddie & W. Brown, 8 Albyn Place, Edinburgh.
" 26	London, E.C.—Premises	Corporation	Engineer, Guildhall, London, E.C.
" 26	Penrhiwceiber, Wales—Three Houses		A. M. Leon, Architect, Cardiff.
" 26	Rochester—Stable and Harness Room	Joint Hospital Board	G. E. Bond, 384 High Street, Rochester.
" 27	Burton-on-Trent—Turkish Bath	Corporation	G. T. Lynam, Borough Engineer, Town Hall, Burton-on-Trent.
" 27	Thornaby-on-Tees—Police Station, &c.	North Riding County Council	W. H. Brierley, 13 Lendal, York.
" 27	Wallsend—School Extension	School Board	Clerk, Board's Offices, Bewicke Schools, Willington Quay.
" 27	Ipswich—Alterations to Walls, &c.	Dock Commissioners	T. Miller, 9 Thoro'fare, Ipswich.
" 27	South Bank, near Middlesbrough—Police Station, &c.	North Riding County Council	W. H. Brierley, 13, Lendal, York.
" 29	Cwmcarn, Mon—Classrooms, &c.	Mynyddislwyn School Board	R. L. Roberts, Architect, Abercarn.
" 29	Derby—School	School Board	A. Macpherson, Architect, Tenant Street, Derby.
" 29	Coventry—Residence		G. & J. Stearne, 22 Little Park Street, Coventry.
" 30	Wesham, Lancs—Workhouse and Offices	Fylde Union Guardians	Haywood & Harrison, Accrington.
" 30	Leicester—Chimney Shaft	Tramways Committee	E. G. Mawbey, Engineer, Town Hall, Leicester.
Oct. 1	Kingstown, Ireland—Pavilion	Pavilion Gardens, Kingstown, Ltd	Beckett and Medcalf, 10 Leinster Street, Dublin.
" 1	Barton-upon-Irwell—Schools		Wright & Son, Surveyors, Manchester.
" 2	Carbis Bay—Church	Wesleyans	O. Caldwell, Architect, Alexandra Road, Penzance.
" 2	Wolverhampton—Hospital	District Hospital for Women Management Committee.	A. E. Painter, 43 Lichfield Street, Wolverhampton.
" 2	Chelmsford—Offices	County Council	F. Whitmore, County Architect, Duke Street, Chelmsford.
" 2	Sidmouth, Devon—Hotel	Hotels Co., Ltd.	R. W. Sampson, Architect, Manor Offices, Sidmouth.
" 3	Coombe, Newlyn—Stores	R. R. Bath	H. Maddern, 26 Clarence Street, Penzance.
" 4	Halifax—Two Villas		G. Buckley & Son, Architects, Tower Chambers, Halifax.
" 4	Hoole, Chester—Walling and Fencing	Urban District Council	A. E. Caldecutt, 17 Newgate Street, Chester.
" 6	Zennor, Cornwall—Alterations, &c., to Public House		N. C. Whear, jun., Architect, Penzance.
" 6	Pontypool—Church and School		Swash & Bain, Midland Bank Chambers, Newport, Mon.
" 6	Tredegar, Mon—Latrines, &c.	Bedwellty School Board	James & Morgan, Architects, Cardiff.
" 6	Brandon—Post Office		J. Farley, Architect, Old Cross, Hertford.
" 7	Acton, W.—Refuse Destructor	District Council	D. J. Ebbetts, 242 High Street, Acton, W.
" 7	London, S.E.—Cartshed, Bothy, &c.	London County Council	General Section, Architect's Department, 18 Pall Mall East, S.W.
" 7	Starbeck, Yorks—Subway	North-Eastern Railway Co.	W. J. Cudworth, Company's Engineer, York.
" 8	Hatfield, Herts—Offices, &c.	Hertfordshire County Council	County Surveyor, 41 Parliament Street, S.W.
" 11	Liscard, Wallasey—Sand-drying Kiln, Stables, Stores, &c.	Wallasey Urban District Council	J. H. Crowther, Engineer, Great Float, near Birkenhead.
" 14	Harrow, Middlesex—Court House	County Council	H. T. Wakelam, County Architect, Middlesex Guildhall, Westminster.
" 14	London, S.E.—Weights and Measures Testing Office and Coroner's Court.	London County Council	General Section, Architect's Department, 18 Pall Mall East, S.W.
	ENGINEERING:		
Sept. 25	Ashford, Middlesex—Electric Lighting	West London School Dist. Mgrs.	T. J. Digby, 32 Shaftesbury Avenue, W.
" 25	Ballyshannon, Ireland—Railway Extension	Donegal Railway Co.	A. M'C. Stewart, 8 Shipquay Street, Londonderry.
" 25	Alexandria, Egypt—Three Boilers		Inspector of Irrigation, 3rd Circle, Alexandria.
" 26	Oldham—Lattice Bridge	Corporation	A. Andrew, Gas and Water Offices, Oldham.
" 27	Burton-on-Trent—Turkish Bath	Corporation	T. Lynam, Borough Engineer, Town Hall, Burton-on-Trent.
" 27	Southport—Footbridge and Piling	Corporation	R. P. Hirst, Borough Engineer, Town Hall, Southport.
" 27	Mansfield—Steel Tank and Gasholder	Gas Committee	A. Graham, Engineer, Gas Works, Mansfield.
" 29	Chichester—Additions to Outfall Works	Corporation	Saunders & Saunders, Engineers, Newark-on-Trent.
" 29	Newlyn, Cornwall—Water-Supply Works	Paul Urban District Council	W. Curnow, Clerk, Churchtown, Paul.
" 29	Vigo and Bayona, Spain—Electric Tramway		Office of the Ministry of Agriculture, Commerce and Public Works, Madrid.
" 30	Port Adelaide, South Australia—Harbour		Agent-General for South Australia, 1 Crosby Square, London.
" 30	Burton-on-Trent—Electric Mains, &c.	Corporation	Kincaid, Waller & Manville, 29 Great George Street, Westminster.
" 30	Burythorpe, York—Water Supply		J. H. Preston, Burythorpe House, York.
" 30	Peterborough—Boiler	Corporation	J. C. Gill, Engineer, Municipal Offices, Peterborough.
" 30	St. Margaret's Hope, Orkney—Pier, Store, &c.	Trustees	M. Heddle, Engineer, Municipal Buildings, Kirkwall.
" 30	Bexley Heath, Kent—Transformers, &c.	Bexley Urban District Council	Mordey & Dawbarn, 82 Victoria Street, Westminster, S.W.
" 30	Bredbury—Sewerage Works	Urban District Council	W. Spinks, 20 Park Road, Leeds.
" 30	Bahr Shebin, near Kafr Shista, Egypt—Lock		Chief of Administration Service, Cairo.
" 30	London, N.—Road Bridge	Southgate U.D.C.	C. G. Lawson, Surveyor, Council Offices, Palmer's Green, London.
Oct. 1	Bourne End, Bucks—Sinking Well	Great Marlow Water Co., Ltd.	W. V. Graham, 5 Queen Anne's Gate, Westminster, S.W.
" 2	Kinsale, Ireland—Waterworks	Rural District Council	R. Evans, 53 South Mall, Cork.
" 2	Winchcomb, Glos.—Steam Roller, &c.	Rural District Council	J. H. Stephens, Clerk, Winchcomb.
" 3	Middlesbrough—Two Steam Hopper Barges	Tees Conservancy Commissioners	Engineer to Commissioners, Queen's Terrace, Middlesbrough.
" 6	Ilford—Electric Lighting Plant	Urban District Council	J. W. Benton, Clerk, Council Offices, Ilford.
" 6	Farnborough—Sewerage and Sewage-Disposal Works	Urban District Council	J. E. Hargreaves, Engineer, Town Hall, Farnborough, Hants.
" 6	Margate—Laying Water Main	Corporation	A. Latham, Engineer, Municipal Buildings, Margate.
" 7	Lowestoft—Timber Pier		W. Jaffrey, 3 Victoria Street, Westminster, S.W.
" 7	Honeybourne and Toddington—Railway	Great Western Railway Co.	Engineer, Paddington Station, W.
" 7	Newcastle-on-Tyne—Electrification of Line	Directors, N.E.R.	Wilson Worsdell, N.E R., Gateshead-on-Tyne.
" 7	London, W.—Refuse Destructor	Acton District Council	D. J. Ebbetts, 242 High Street, Acton, W.
" 7	London, N—Light Railway	Middlesex County Council	H. T. Wakelam, County Engineer, Middlesex Guildhall, Westminster, S.W.
" 10	Alexandria, Egypt—Spur Pinion and Fly Wheel		Inspector of Irrigation, 3rd Circle, Alexandria.
" 14	West Ham—Condensing Plant	London County Council	Engineer's Department, County Hall, Spring Gardens, S.W.
" 15	Liscard, Cheshire—Boring	Wallasey U.D.C.	J. H. Crowther, Engineer, Great Float, near Birkenhead.
" 16	Bootle, Cumberland—Waterworks	Rural District Council	R. Pickering, 11 Lowther Street, Whitehaven.
" 20	Bury, Lancs—Waterworks	Joint Water Board	J. Cartwright, Civil Engineer, Peel Chambers, Bury.
" 28	Vielsalm to Lierneux, Belgium—Railway	National Co. of Local Railways	Company's Offices, 14 Rue de la Science, Brussels.
" 30	Shanghai—Electrical Plant	Municipal Commissioners	Preece & Cardew, 8 Queen Anne's Gate, Westminster.
Nov. 14	St. Petersburg—Electric Traction on Tram Lines	Stadt Amt (Town Council)	Stadt Amt, St. Petersburg, Russia.
" 29	Manchester—Reconstruction of Bridge		City Surveyor, Town Hall, Manchester.
" 30	Shanghai—Electric Lighting	British Municipal Councils	Office of the Board of Trade, 50 Parliament Street, S.W.
Dec. 13	Madrid—Canal Reservoir		Office of the Ministry of Agriculture, Commerce and Public Works, Madrid.
	FURNITURE:		
Sept. 27	Cardiff—Furniture and Bedding	Standing Joint Committee	Chief Constable, Canton, Cardiff.
" 30	Ewell, Surrey—Furniture, &c.	L.C.C. Asylums Committee	Office of Asylums Committee, 6 Waterloo Place, S.W.
Oct. 1	Hastings—44 Bedsteads	Workhouse Guardians	A. R. Inskipp, 11 Wellington Square, Hastings.
" 4	Omagh, Ireland—Bed Rests, Chairs, &c.	Union Guardians	W. Cathcart, Clerk, Poor Law Offices, Omagh.
	IRON AND STEEL:		
Sept. 26	Southampton—Steel Rails and Fish Plates	Corporation	J. A. Crowther, Borough Engineer, Municipal Offices, Southampton.
" 27	Glasgow—Pipes and Castings	Corporation	J. M. Gale, 45 John Street, Glasgow.
" 27	Sheffield—Ironmongery	School Board	J. F. Moss, Clerk, School Board Offices, Sheffield.
" 28	Menston—Iron and Steel, &c.		Clerk, Asylum Committee, County Hall, Wakefield

COMPLETE LIST OF CONTRACTS OPEN—*continued.*

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDERS MAY BE OBTAINED.
	IRON AND STEEL—*continued.*		
Sept 29	London, E.—Galvanised Iron Pipes	Bethnal Green Borough Council	R. Voss, jun., Town Hall, Church Row, Bethnal Green, E.
,, 30	Copenhagen—Railway Stores	Danish State Railways	Construction of the State Railways, 10 Reventlowsgade, Copenhagen.
Oct. 2	London, S.W.—Railway Stores	Secretary of State for India	Director-General of Stores, India Office, Whitehall, S.W.
,, 9	London, S.W.—Chains and Springs	Southern Mahratta Rly. Co., Ltd.	E. Z. Thornton, 46 Queen Anne's Gate, Westminster, S.W.
,, 15	Callao, Peru—Cast-iron Pipes	Corporation	Graham, Rowe & Co., Mersey Chambers, Liverpool.
,, 29	Callao, Peru—Cast-iron Pipes	Corporation	Graham, Row & Co., Liverpool.
	PAINTING AND PLUMBING:		
Sept. 25	Bristol—Painting and Cleaning Schools, &c.	Municipal Charities Trustees	Foster & Wood, 35 Park Street, Bristol.
,, 27	Spezia—Red Lead	Director-General of Italian Royal Arsenal.	Commercial Intelligence Branch of the Board of Trade, 50 Parliament Street, London. S.W.
,, 29	Morley, Yorks—Painting	Sewage Purification Committee	W. E. Putman, Borough Engineer, Town Hall, Morley.
Oct. 2	Alnwick—Sanitary Improvements	Union Guardians	M. T. Wilson, Architect, Alnwicke.
	ROADS AND CARTAGE:		
Sept. 25	Salisbury—Roads	Rt. Hon. the Earl of Pembroke	Lemon & Blizzard, 38 Silver Street, Salisbury.
,, 25	Deal—Flints	Corporation	T. C. Golder, 23 Queen Street, Deal.
,, 25	Gateshead—Paving, &c., Streets		Borough Engineer, Town Hall, Gateshead.
,, 26	Southampton—Granite	Corporation	J. A. Crowther, Borough Engineer, Municipal Offices, Southampton
,, 26	Ansthruther Wester, Scotland—Paving	Town Council	J. Currie, Architect, Elie.
,, 29	Beckenham—Making-up	Urban District Council	J. A. Angell, Surveyor, Council Offices, Beckenham.
,, 29	Witham, Essex—Granite	Urban District Council	W. B. Blood, Clerk, Witham, Essex.
,, 30	London, N.—Roads and Sewers	London County Council	Housing of the Working Classes Section, Architect's Department, 19 Charing Cross Road, S.W.
,, 30	Carshalton—Materials, Steam Roller, &c.	Urban District Council	W. W. Gale, Surveyor, High Street, Carshalton.
,, 30	London, N.—Making-up Roads	Tottenham U.D.C.	W. H. Prescott, 712 High Road, Tottenham.
Oct. 1	Littlehampton—Quartzite	Urban District Council	A. Shelley, Clerk, Town Offices, Littlehampton.
,, 1	London, S.W.—Making-up and Paving	Fulham Borough Council	F. Wood, Borough Surveyor, Town Hall, Fulham, S.W.
,, 4	Hoole, Chester—Street Works	Urban District Council	A. E. Caldecutt, 17 Newgate Street, Chester.
,,	Heswell, Cheshire—Road Construction	Wirral R.D.C.	T. Davies, 33 Kingsland Road, Birkenhead.
	SANITARY:		
Sept. 26	West Hartlepool—Sewer	Corporation	J. W. Brown, Borough Engineer, West Hartlepool.
,, 27	Buxton—Sewer, &c.	Urban District Council	W. H. Grieves, Town Surveyor, Town Hall, Buxton.
,, 29	Uttoxeter—Sewerage Works	Urban District Council	Willcox & Raikes, Engineers, Union Chambers, 63 Temple Row, Birmingham.
,, 29	Guildford—Sewerage Works	Rural District Council	J. Anstee, Council's Engineer, Commercial Road, Guildford.
,, 30	Glasgow—Sewer	Corporation	City Engineer, City Chambers, 64 Cochrane Street, Glasgow.
,, 30	Bredbury—Sewerage Works	Urban District Council	W. Spinks, 20 Park Row, Leeds.
,, 30	Runcorn—Scavenging	Rural District Council	G. F. Ashton, 71 High Street, Runcorn.
,, 30	London, N.—Sewers	Islington Borough Council	J. P. Barber, Borough Engineer, Town Hall, Upper Street, N.
Oct. 3	London, S.W.—Stoneware Drain Pipes, &c.	London County Council	Park Department, 11 Regent Street, S.W.
,, 6	Farnborough—Sewerage and Sewage-Disposal Works	Urban District Council	J. E. Hargreaves, Engineer, Town Hall, Farnborough, Hants.
,, 7	London, S.W.—Lime and Proto-Sulphate of Iron	London County Council	Engineer's Department, County Hall, Spring Gardens, S.W.
Dec. 15	Monte Video—Sanitary Works	Government of Uruguay	Uruguay Legation, London.
	TIMBER:		
Sept. 25	Bristol—Timber for Show Yard Buildings	Bath and West and Southern Counties Society.	T. F. Plowman, 4 Terrace Walk, Bath.
,, 27	Spezia—Yellow Pine-wood	Director-General of the Italian Royal Arsenal.	Commercial Department of the Board of Trade, 50 Parliament Street, London, S.W.
,, 29	London—Red Fir Telegraph Poles	General Post Office	S. C. Hooley, Controller of Stores, General Post Office, E.C.
,, 29	London, E.—Wood Paving Blocks	Bethnal Green Borough Council	R. Voss, jun, Town Hall, Church Row, Bethnal Green, E.

COMPETITIONS OPEN.

DATE OF DELIVERY.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Sept. 29	Bideford—Municipal Offices and Public Library	£30, £15, £10.	W. B. Seldon, Town Clerk, 18 The Quay, Bideford.
Oct. 1	Maidenhead—Free Library	£50, £20, £10.	John Kick, Town Clerk, Guildhall, Maidenhead.
,, 9	Greenwich—Public Library	£50, £30.	F. Robinson, Town Clerk, Town Hall, Greenwich.
,, 14	Newark—Alterations and Additions to Infirmary	£21.	Mr. H. Colton, Clerk to Guardians, 27 Lombard Street, Newark
,, 15	Strood—Infectious Diseases Hospital	£15 15s.	J. E. Povey, Clerk, Strood Union, Rochester.
Nov. 1	Allahabad—Memorial to Queen Victoria	2,000 Rs.	H. N. Wright, Indian Civil Service, Allahabad, India.
,, 29	Ramsgate—Technical Schools and Free Library	£50, £25, £15.	T. G. Taylor, Borough Surveyor, Albion House Ramsgate.
Jan. 31	Cape Town—University Buildings	£400, £200, £100.	Agent-General for the Cape of Good Hope, London.

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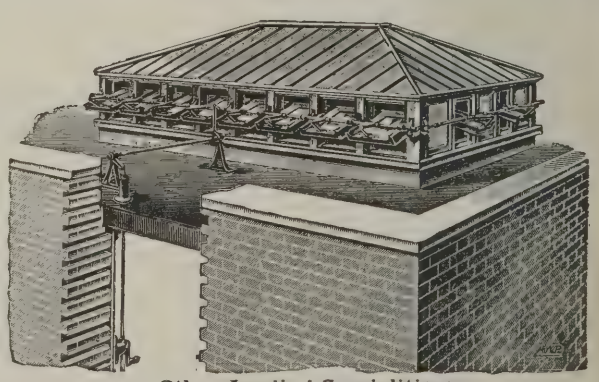
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FORAGE.

		£	s.	d.	£	s.	d.
Beans	per qr.	1	15	0	2	0	0
Clover, best	per load	4	15	0	5	10	0
Hay, best	do.	4	15	0	5	5	0
Sainfoin mixture	do.	4	10	0	5	5	0
Straw	do.	1	16	0	2	8	0

OILS AND PAINTS.

Castor Oil, French	per cwt.	1	5	9			—
Colza Oil, English	do.	1	6	0			—
Copperas	per ton	2	0	0			—
Lard Oil	per cwt.	2	13	0	2	14	0
Lead, white, ground, carbonate	do.	1	4	10			—
Do. red	do.	1	0	4½			
Linseed Oil, barrels	do.	1	8	6			—
Petroleum, American	per gal.	0	0	5⅜	0	0	5⅜
Do. Russian	do.	0	0	5¼	6	0	5½
Pitch	per barrel	0	7	0			—
Shellac, orange	per cwt	5	5	0			—
Soda, crystals	per ton	3	2	6	3	5	0
Tallow, Home Melt	per cwt.	1	8	3	1	9	0
Tar, Stockholm	per barrel	1	1	6			—
Turpentine	per cwt.	1	14	7½			—

METALS.

Copper, sheet, strong	per ton	69	0	0			—
Iron, Staffs., bar	do.	6	10	0	8	10	0
Do. Galvanised Corrugated sheet	do.	11	5	0	11	10	0
Lead, pig, Soft Foreign	do.	11	0	0			—
Do. do. English common brands	do.	11	5	0			—
Do. sheet, English 3lb. per sq. ft. and upwards	do.	13	10	0			
Do. pipe	do.	14	0	0			—
Nails, cut clasp, 3in. to 6in.	do.	9	5	0			—
Do. floor brads	do.	9	0	0			—
Steel, Staffs., Girders and Angles	do.	5	15	0	6	5	0
Do. do. Mild bars	do.	6	10	0	7	0	0
Tin, Foreign	do.	121	5	0	121	15	0
Do. English ingots	do.	121	10	0	122	10	0
Zinc, sheets, Silesian	do.	24	0	0			—
Do. do. Vieille Montaigne	do.	24	0	0			—
Do. Spelter	do.	19	2	6	19	10	0

TIMBER.

SOFT WOODS.

Fir, Dantzic and Memel	per load	1	13	0	3	0	0
Pine, Quebec, Yellow	per load	4	15	0	6	0	0
Do. Pitch	do.	2	14	0	3	1	0
Laths, log, Dantzic	per fath.	4	10	0	5	10	0
Do. Petersburg	per bundle	0	0	8			—

Tenders.

Information from accredited sources should be sent to "The Edstor" at latest by noon on Monday if intended for publication in the following Wednesday's issue. Results of Tenders cannot be accepted unless they contain the name of the Architect or Surveyor for the work.

Addressed postcards on which lists of tenders may be stated will be sent post free on application to the Manager, BUILDERS' JOURNAL, *Effingham House, Arundel Street, Strand, W.C.*

Cromer.—For the erection of a cemetery chapel, lodge, &c., for the Urban District Council. Mr. A. F. Scott, (district surveyor), architect, Cromer:—

J. Parrew & Son, Earith, Hunts	£2,714 13 3
Girling & Smith, Cromer	2,674 18 0
R. Chapman, Hanworth	2,668 0 0
A. D. Boddy & Son, Norwich	2,612 0 0
Scarles Brothers, Norwich	2,545 0 0
H. C. Greengrass, Norwich	2,540 0 0
J. Youngs & Son, Norwich	2,537 1 5
H. Bullem, Cromer	2,498 6 8
G. A. Lines, Runton	2,476 10 5
S. & F. Smith, Great Yarmouth	2,434 8 10
W. Porter,* Cromer	2,414 13 8

* Accepted.

Briton Ferry (Wales).—For the erection of a new club building, for the Briton Ferry Working Men's Club and Institute. Mr. H. Alexander Clarke, architect, Briton Ferry:—

T. Waters, Briton Ferry and St. Thomas, Swansea	£1,472
L. Gower,* Briton Ferry	1,295

* Accepted. [Architect's estimate, £1,350.]

Enfield (Middlesex).—For the erection of a deaf centre and additions to the junior mixed and infant departments at the Bush Hill Park School, for the Enfield School Board. Mr. G. E. T. Laurence, architect, 22 Buckingham Street, Adelphi, W.C. Quantities by Messrs. Campbell & Sons, Finsbury Circus:—

For the whole additions to infants' and junior and new deaf centre.

A. E. Symes, Stratford	£7,468
M. Wells & Co., Aldershot	7,399
Snewin Brothers & Co., Upper Clapton	6,999
General Builders, Ltd., Notting Hill	6,987
Chessum & Sons, Crown Wharf, Bow	6,863
A. F. Almond, Enfield Highway	6,842
L. & W. H. Patman, Enfield	6,685
Lawrence & Son, Waltham Cross	6,349
T. Almond & Son, Ponders End	6,330
R. & L. Tonge, Watford	6,300
Pollard & Brand, South Tottenham	6,272
A. Monk, Lower Edmonton	6,166
A. Fairhead & Son, Enfield	5,997
H. Knight & Son, Tottenham*	5,713

For works omitting deaf centre.

A. E. Symes	£6,535
M. Wells & Co.	6,429
Snewin Brothers & Co.	6,203
General Builders, Ltd.	6,110
Chessum & Sons	5,776
A. F. Almond	6,005
L. & W. H. Patman	5,837
Lawrence & Son	5,565
T. Almond & Son	5,500
R. & L. Tonge	5,480
Pollard & Brand	5,460
A. Monk	5,373
A. Fairhead & Son	5,247
H. Knight & Son*	4,993

* Accepted subject to approval of Board of Education and execution of contract, &c.

Great Yarmouth.—For the erection of a house for Miss Thurtell, Belle Vue Estate, Gorleston. Mr. Sidney Rivett, M.S.A., architect, South Quay, Great Yarmouth:—

Whole tenders.

Eastoe	£1,530 0 0
Beckill, Carlton Colville	1,377 17 3

Brickwork and Carpentry.

Bond	1,239 0 0
Moore & Sons	1,187 0 0
S. & F. Smith*	1,121 0 0

Brickwork.

W. Howes	£807 0 0
J. D. Harman	797 10 0
Beech	777 10 0

Carpentry.

Grimble	507 0 0
Moore & Sons	430 0 0
S. & F. Smith	390 0 0
Read	380 0 0

Plumbing, &c.

Harvey, Gorleston	165 7 6
Gooda	153 10 0
Read, Gorleston	148 0 0
Rushmer	147 0 0
Platt & Son	139 18 0
Spencer	137 1 6
Sooley	128 8 0
Atherton*	128 0 0

* Accepted. [Rest of Yarmouth.]

Ilkeston and Heanor.—For waterworks: (Contract No. 3) the construction of a covered service reservoir holding 800,000 gals. at Ilkeston, and a covered service reservoir holding 440,000 gals. at Codnor, and for the provision and laying of a gravitation main from Chadwick Nick reservoir through Heanor to Ilkeston, consisting of about 11¼ miles of 15in., 14in. and 12in. cast-iron pipes of varying thicknesses, and also of about 3¾ miles of 12in. and several miles of 6in., 4in. and 3in. distributing mains in the respective districts of the Ilkeston Corporation and

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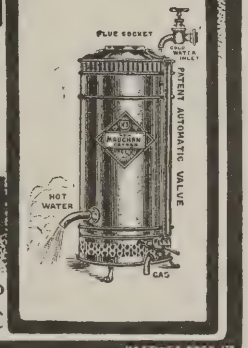
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TENDERS—*cont.*

the Heanor Urban District Council, together with all special pipes, sluice valves, hydrants and other apparatus necessary to complete the works, for the Ilkeston and Heanor Water Board. Messrs. George and Frederic W. Hodson, engineers, Westminster and Loughborough :—

H. Fotherby & Son, Burnley	£67,621
C. Chamberlin, Leicester	61,239
G. Bell, Tottenham	55,265
H. Roberts, West Bromwich	54,589
W. & J. Foster, West Hartlepool	53,750
E. Wood & Sons, Derby	52,100
R. Wood, Bingley	51,536
W. Moss & Sons, Ltd., Loughborough	50,900
Smart & Ashley, Mansfield	52,155
W. Jones & Sons, Neath	48,669

London, N.W.—For laying 3,215ft. lineal of pipe sewers 9in. in diameter; 2,170ft. of surface-water drain 9in. in diameter, 100ft. ditto 12in. ditto, 170ft. ditto 24in. ditto; and the construction of manholes, lampholes, gulleys, &c.; also the formation and ballasting of about 3,215ft. lineal of road 40ft. in width at Mill Hill, Hendon, for Irwin E. B. Cox, Esq., M.P. Messrs. Pollard and Tingle, MM.I.C.E., engineers, 31 Old Queen Street, Westminster :—

J. Walker, Holloway Road	£4,928 13 2
J. A. Ewart, Warrington	4,662 10 0
W. H. Wheeler, Blackfriars Road	3,693 0 0
F. Dupont, Watford	3,500 0 0
Wallis & Sons, Hitchen	3,395 17 2
G. R. Mann, Edgware	3,254 8 2
C. Ford, Harlesden	2,804 0 0
W. Neave & Son, Kensal Rise	2,927 0 0
W. Lee & Sons, High Wycombe	2,775 0 0
T. Adams, Wood Green	2,639 19 10
C. Killingback, Camden Town	2,625 0 0
R. Ballard, Child's Hill	2,611 1 8
G. Bell, Tottenham	2,491 0 0
J. A. Dunmore, Crouch End	2,487 0 0
H. Williams,* Harpenden	2,481 13 0

* Accepted.

London, S.E.—For the erection of the superstructure of cold stores Block D, and additional works to basement of B and C, at Greenbank and Morgan's Lane, Tooley Street, S.E., for the London Riverside Cold Storage Co., Ltd. Messrs. Newman and Newman, architects, 31 Tooley Street, London Bridge. Quantities by Mr. R. C. Gleed, 8 & 9 Martin's Lane, Cannon Street, E.C. :—

G. Parker	£26,879
Colls & Sons	26,212
Hall, Beddall & Co.	26,180
Patman & Fotheringham	25,793
Rider & Sons	25,563
W. Downs	25,444
Perry & Co.	25,157
J. Greenwood,* Arthur Street, E.C.	24,467

* Accepted.

London S.E.—For the erection of a new school on land off Hercules Road, Lambeth, for the trustees of the Lambeth Boys' School. Mr. J. Arthur Reeve, architect, 20 Victoria Street, Westminster :—

Pritchard & Renwick, Tooley Street, S.E.	£10,120 9 0
G. Jackson, Sutton	9,928 0 0
B. E. Nightingale, Albert Embankment	9,639 0 0
S. L. Green, Red Lion Square, W.C.	9,557 9 0
Foster & Dicksee, Rugby	9,376 0 0
Smith & Son, Harleyford Road, S.E.	9,375 0 0
Shillitoe & Son, Bury St. Edmunds	9,300 0 0
C. A. Ansell, Chicheley Street, S.E.	9,229 0 0
Holloway Brothers, Belvedere Road, S.E	9,200 0 0
Stimpson & Son, Brompton Road, S.W.	8,990 0 0
Hooper & Son, Wandsworth Road, S.W.	8,950 0 0
W. J. Renshaw, Putney	8,944 0 0
Scutt & Sons, Waterloo Road, S.E.	8,856 17 9
J. G. Sharpington, Nunhead	8,748 0 0
Lorden & Sons, Upper Tooting	8,666 0 0
J. Parsons, Waterloo Road, S.E.	8,640 0 0
J. Appleby, Stamford Street, Lambeth	8,325 0 0

Lowestoft.—For the construction of about 1,250yds. of 15in., 12in. and 9in. stoneware pipe sewers in London Road and Denmark Road, with lampholes, manholes and flushing chamber complete, for the Lowestoft Town Council. Mr. George H. Hamby, A.M.I.C.E., borough engineer :—

W. Wimpey & Co., Hammersmith, London	£2,901 0 0
T. & J. Burgoyne, Pakefield, Suffolk	2,531 6 0
W. Church, 2 Lorne Road, Lowestoft	2,520 0 0
G. Rackham, Norwich	2,281 0 0
Bradshaw & Co., Queen Victoria Street, London	2,116 12 11
J. Ashby,* Mill Road, Lowestoft	1,658 0 0

* Accepted.

Margate.—For the sinking of a well and working shafts, and driving about 3,200yds. of adit at Wingham, about a mile north of Adisham Railway Station, on the main line from Canterbury to Dover, for the Margate Waterworks. Mr. Albert Latham, M.I.C.E., borough engineer :—

T. Tilly & Sons, London	£37,546 12 6
B. Cooke & Co., London	26,637 3 8
J. F. Price, Nottingham	26,513 12 10
A. E. Nunn, Tenterden	22,000 0 0
Paramor & Sons, Margate	21,066 18 10
Tuff & Miskin, Rochester	20,000 0 0
R. D. Batchelor, Chatham	19,869 3 0
J. Smith & Co., Cavishaw, Ayrshire	17,409 8 0
J. H. Vickers, Ltd., Nottingham	16,500 0 0
Wingham Agricultural Co.*	9,499 5 4

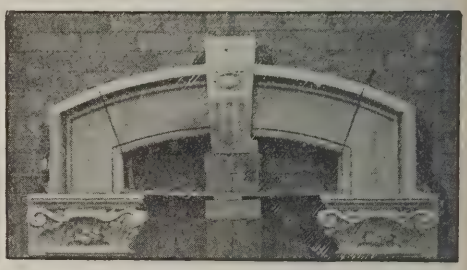
* Accepted.

Peterborough.—For building a school of art, for the City Council :—

E. Beech	£3,325	J. Cracknell	£2,896
H. Watson	3,000	D. Gray	2,889
Bridgfoot	2,999	Lucas*	2,840
Sibley Brothers	2,997		

* Accepted.

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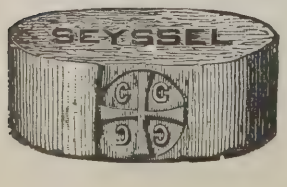
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Newmilns, Ayrshire.—Accepted for reconstruction of building to be used as a masonic hall at Newmilns, Ayrshire. Mr. John Macintosh, architect, Galston:—

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Joiner work.

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[All of Newmilns.]

Plaster work.

T. R. Wyper, Galston £29 0

Potton (Bedfordshire).—For the construction of tanks, pumping machinery and engine-house, together with lengths of sewers and cast-iron mains, for the Biggleswade Rural District Council. Messrs. John Taylor, Sons and Santo Crimp, engineers, 27 Great George Street, Westminster, S.W.:—

Cross and Cross, Walsall	£4,141	0	0
B. Cooke & Co., 16 Victoria Street, Westminster	3,520	0	0
J. Wingrove, Northampton .. .	2,932	16	0
J. Jackson, Forest Gate, London, E.	2,919	8	1
Ford, Harlesden, London	2,899	0	0
A. G. Osenton, Westerham, Kent ..	2,899	0	0
A. Jewell, Kettering Road, Market Harborough	2,826	15	0
F. J. Bailey, Ashwell, Herts	2,695	0	0
W. G. Willmott, Rushden	2,676	0	0
A. E. Nunn, Tenterden, Kent	2,649	0	0
W. Hinkin, Royston, Herts	2,632	13	3
J. Moffat,* 38 Arcade Chambers, Manchester	2,577	18	4

* Accepted.

Coming Events.

Wednesday, Sept. 24.

NATIONAL ASSOCIATION OF MASTER HOUSE PAINTERS AND DECORATORS OF ENGLAND AND WALES.—(Second Day.) Mr. R. G. Hatton on "The Training of the Apprentice in Drawing, Design and Colouring," 9.30 a.m. Mr. Lewis F. Day on "The Art and Trade of the House-Painter," 11 a.m. Mr. F. Grundy on "Should Arbitration in Trade Disputes be made Compulsory," and Mr. G. Tawse on "Fifty Working Years of a Painter's Life, and the Men I have Met," 3 p.m. Annual meeting and election of officers at 4.30 p.m. Reception by the President at 7.30 p.m.

NAIL MANUFACTURERS.—Conference and Dinner at the Trocadero at 3 p.m.

BUILDERS' FOREMEN AND CLERK OF WORKS' INSTITUTION.—Quarterly meeting of the Directors at 8 p.m.

Thursday, Sept. 25.

NATIONAL ASSOCIATION OF MASTER HOUSE PAINTERS AND DECORATORS OF ENGLAND AND WALES.—(Third Day.) Annual Excursion to Raby Castle, and Annual Dinner.

Friday, Sept. 26.

NATIONAL ASSOCIATION OF MASTER HOUSE PAINTERS AND DECORATORS OF ENGLAND AND WALES.—(Fourth and last Day.)

SANITARY INSTITUTE (Lectures and Demonstrations for Sanitary Officers, Part I.).—Mr. E. J. Steegmann, M.B., on "Mechanical Physics," 7 p.m.

Saturday, Sept. 27.

INCORPORATED ASSOCIATION OF MUNICIPAL AND COUNTY ENGINEERS.—Midland district meeting at West Bromwich.

Monday, Sept. 29.

SANITARY INSTITUTE (Lectures and Demonstrations for Sanitary Officers, Part I.).—Mr. E. J. Steegmann, M.B., on "Natural Forces," 7 p.m.

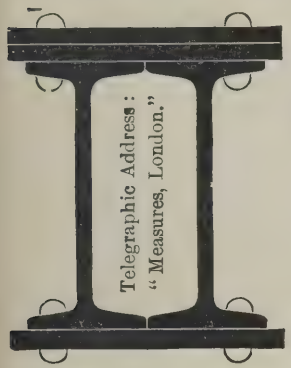
Wednesday, Oct. 1.

SANITARY INSTITUTE (Lectures, &c.).—Mr. E. J. Steegmann, M.B., on "The Atmosphere," 7 p.m.

Friday, Oct. 3.

ARCHITECTURAL ASSOCIATION.—Presidental Address by Henry T. Hare, F.R.I.B.A., and Distribution of Prizes at 7.30 p.m.

SANITARY INSTITUTE (Lectures and Demonstrations for Sanitary Officers, Part I.).—Mr. E. J. Steegmann, M.B., on "Meteorology," 7 p.m.



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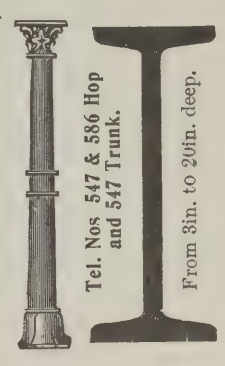
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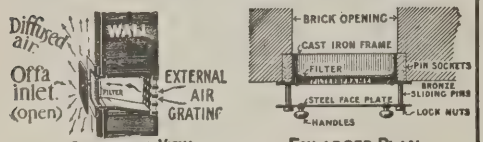
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MEDIÆVAL FIGURE SCULPTURE IN ENGLAND. By EDWARD S. PRIOR and ARTHUR GARDNER.

CHAPTER II.—Norman Sculpture. Section A.—The Beginnings of its Style. With 19 Illustrations.

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Oct. 1, 1902. No. 399.

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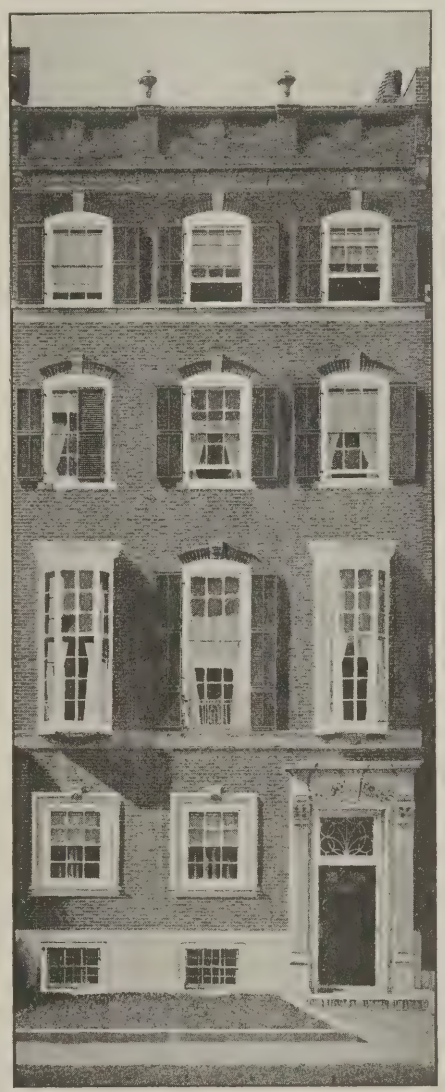
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An Architectural Causerie.

Liverpool Cathedral Competition. Surprise at not seeing more Renaissance or Classic designs—those that are such being neither commanding nor remarkable; Gothic predominant and therefore apparently the style from which it would be practical to select; the majority of designs having plans more or less like mediæval cathedrals, with—for the purposes of the English Church—too many chapels clustering around the east end of the choir; the danger of being tricked by a clever drawing of a poor conception; the 103 sets of designs submitted consisting of thirty-three expressly prepared, twenty-three mostly sent in for other large churches in different parts of the world, and the remainder a miscellaneous collection of photographs, drawings and sketches, many of them just gathered together as they lay handy—with little thought or discrimination—and tied up in portfolios; a selection of five and an honourable mention of eight men. Thus may be summed up the report of Mr. Bodley and Mr. Norman Shaw on the preliminary competition for Liverpool Cathedral. It can be read in full on p. 110 of this issue. There is not much to say about it, though we may mention that in our own selection of the designs (see the issue for July 30th last) three out of the five chosen numbers were given. Many well-known architects entered for the competition and many of them are not mentioned—honourably or otherwise—they simply form part of the "remainder," and there is no need to worry about the hindermost being looked after by at least some architectural representative from the Lower Regions. But it is the second competition which will show whether we are capable of producing a really fine modern cathedral. It will be a costly one, and the Committee will need a good many more money-bags to carry out the work as it deserves. At present they have hardly £155,000, out of which £11,300 will need to be paid for the site, a thousand guineas to Mr. Bodley and Mr. Shaw, and at least another fifteen hundred guineas to the competing architects; which leaves about £140,000 for the fabric itself. When the accepted design is exhibited it will be time enough to judge how much of it could be built for that sum.

Paris Architects' Fees. After considerable discussion it has been decided that the fees paid to architects engaged on public works in Paris shall be according to a sliding scale, so that the percentage on the most important buildings will be less than that for the smaller works. In future the commission on all buildings costing more than about £30,000 will be at the rate of 4 per cent.; those between £25,000 and £30,000 at the rate of 4½ per cent.; those



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R. C. STURGIS, ARCHITECT.

between £15,000 and £25,000 at the rate of 5 per cent.; those between £8,000 and £15,000 at the rate of 5½ per cent.; and 6 per cent. for all those buildings costing less than £8,000. The ordinary rate of commission throughout France is, as in our own country, 5 per cent.—in fact, French custom had settled this before the R.I.B.A scale was introduced. This newer scale is, however, instructive, and architects will doubtless be interested in it; but, though the percentages are so carefully adjusted, the scale is subject to alteration by the Administration, who reserve the right to increase or diminish the amount of commission as they think expedient in particular cases.

An American House. The illustration on this page shows a town house by a prominent American architect, and is a good example of the more refined work done on the other side of the Atlantic; there is indeed a marked austerity about the building, the ornamentation being confined to the string-courses at the top and bottom, three keystones, and the very delightful doorway. The design is eminently French in feeling and exhibits those academic qualities characteristic of French architects, though the two small bay windows on the first floor are somewhat of a novelty. Altogether the house is one that looks well when fresh from the builders' hands, and one likely to weather into a most charming piece of work.

Sydney's Great Bridge. The Advisory Board appointed to deal with the designs and tenders for the great high-level bridge that is proposed to be built across Sydney Harbour has issued a report which furnishes the following interesting facts:—Fifteen tenders were sent in, three of which were laid aside as informal, while of the remainder the Board appeared to favour the design of a French company—the Fives-Lille Co. of Paris—but reported that the amount of the tender (more than three millions sterling) was prohibitive. Other designs were also laid aside on account of cost, others again for æsthetic considerations, leaving three only which, with certain modifications, came within the required conditions. These three designs consist of one by Messrs. Arrol & Co., Ltd., Glasgow (£1,221,152); a cantilever design of Messrs. J. Stewart & Co.; and a design of the E. and C. Bridge Co. (£1,843,855). The three firms have been asked to submit amended tenders by January 27th next. It will be seen, however, what a great undertaking this bridge must be in any case.

Engineers for South Africa. Many of our young architects and engineers have long been thinking of South Africa as a free field for their energies. We have ourselves published certain facts for their benefit, and these we now supplement by the following remarks of a man on the spot—the special commissioner sent out by the "Engineer," who, writing from Cape Town, says:—"The man whom I recommend to take his chances in Cape Colony is the young and energetic engineer who has worked his way up to that sticking point, arrived at by so many, where, after having acquired a thorough knowledge of his particular branch, he can see no prospect of material advancement at home for many years to come. If such a young man will come out here with sufficient money—say £200—to enable him to live for a few months while he is looking about for employment and taking his bearings, his chances in the long run might be good. But he must be prepared to take a position out here at much the same level as that which he gave up at home, or perhaps a little lower down on the ladder, and from there he must work his way up. When he has shown himself capable, his advancement should be much more rapid here than at home. To such a man I should say come to Capetown rather than to Johannesburg in the first place."

SOME ENGLISH DOORHEADS.

By JOHN HUTCHINGS, A.R.I.B.A.

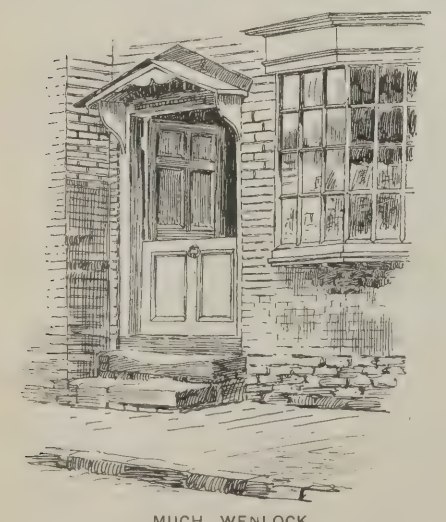
JUST as the hearth has become the central and most important object of the interior of our homes, the entrance door with its porch is usually the most prominent external feature. A rectangular hole in a wall appears to have been the primitive form of entrance, but from remotest time efforts were made to ornament and embellish this opening. The Egyptians added dignity and importance to their gateways by flanking them with huge pylons;



THE READER'S HOUSE, LUDLOW.

they also employed the portico and colonnade as a decorative feature, which in the hands of the masterful Greeks reached such a degree of graceful perfection. The mediævals lavished all the resources of sculpture and carving at their command upon the gateways of their churches, and in humbler fashion they ornamented the domestic door with bracket and spur, quaint notchings and heraldic devices.

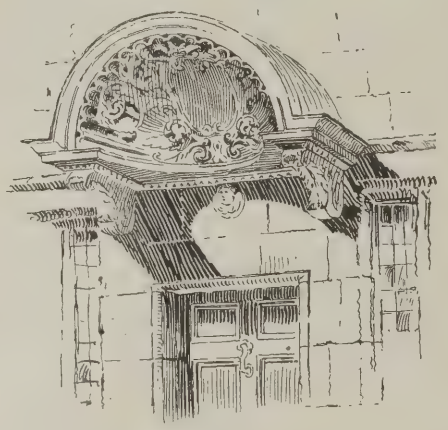
It was left, however, to the Renaissance craftsman to develop this particular adjunct as applied to the cottage and the middle-class house; and while the more grandiose structures of this period too often fail to impress or interest, the simpler porches of the people possess all the charm of suitability of purpose and originality of conception. Even in the later Georgian period, when the coped parapet took the place of the broad eaves cornice, the glory of the previous era, and plain rectangular holes in the walls were deemed to satisfactorily answer the purpose of fenestration, the entrance was almost always quiet and well-proportioned, often elegant and suitable in design and sometimes combined with these qualities a vigorous, picturesque originality.



MUCH WENLOCK.

Walk down Essex Street, Norfolk Street, Queen Anne's Gate and any other thoroughfare of equal age in London, and try to imagine the dull monotony that would prevail if unredeemed by the porches supported by bracket, pilaster and column and decorated with delicate acanthus, honeysuckle and other well-known classic ornaments, that relieve the bare wall-surface. Such would be the mournful appearance of our provincial streets—in a lesser degree, it is true, thanks to creeper and lichen, those acquisitions of age denied to the less fortunate town mansion—if our old brick towns were stripped of these accessories. They would certainly loose three-fourths of their interest.

The most primitive form of structural porch is a slab of slate, stone or wood supported upon two bearers built into the wall;



OXFORD.

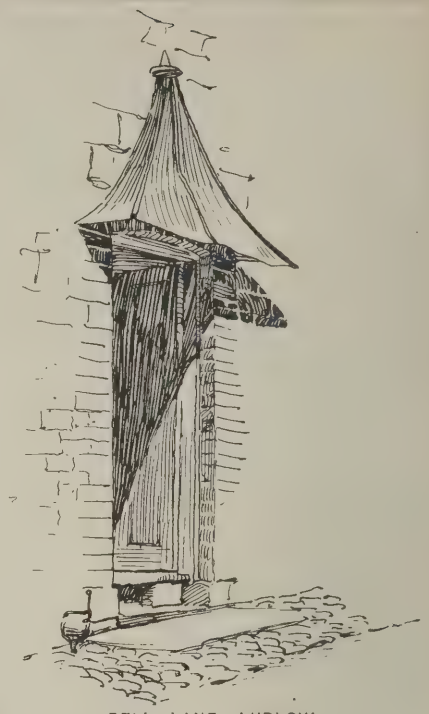
or two sloping slabs forming a gable, supported in the same way. These two are the parents of an infinitely varied offspring, of which each may be classed as belonging to the family of gables or flats, though the domical or curved shape may be regarded as a new departure.

Let us follow the development of the slab supported at each end by bearers. In the early examples the sustaining members are roughly squared; in some the slab has a slope forward to throw off the rain in front. But, with the progress of decoration and the acquisition of means, the supports were carved into rough-curved shapes, into grotesque heads, and, as knowledge and skill increased, into graceful brackets and elegant shafts. The slab itself, no longer a thin slice, is thickened out and wrought into all manner of forms and decorated with mouldings and foliage. Sometimes it is hollowed out into a quarter-dome, sometimes wrought into an arch.

The gabled variety undergoes a similar metamorphosis until its stately and finished proportions almost entirely obliterate its mean utilitarian origin.

The peasant surrounds his door with lattice-work, which, in a season or two, becomes gay with rose, honeysuckle and jessamine, a natural decoration more appropriate to his whitewashed walls than any masterpiece of the craftsman.

Besides the mason, the carver and joiner, the worker in metal evolves his own idea in his own way, at first assisting the joiner; but becoming bold by experiment, also launches

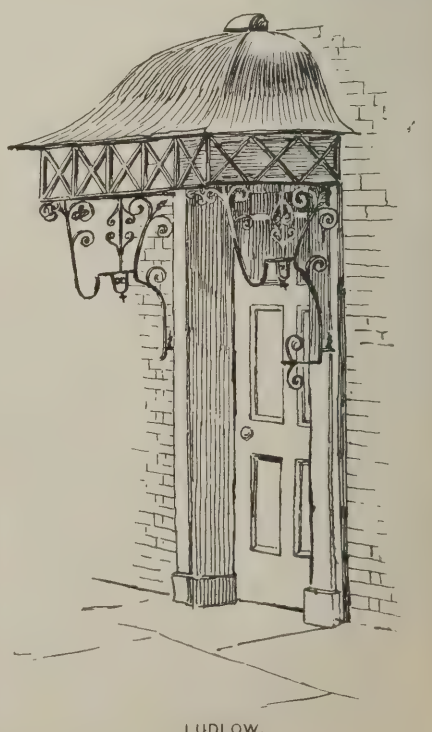


BELL LANE, LUDLOW.

out independently and with the happiest results.

Apart from a few brilliant exceptions, the architecture of the Renaissance, the period to which we will confine ourselves at present, was so stilted and academic that one has to search amongst the work of the village craftsman and the obscure practitioner for work of a lighter and more varied type; in short, amongst those whose imaginations were unfettered by the stiff scholasticism of the fashionable designer, and to whom the art of conceiving appropriate forms was an inherited gift and a delightful exercise rather than a laborious effort after artificial ostentation.

The majority of the examples here illustrated are taken from Shropshire, though most of the forms are common to other parts of the country. In selecting them preference has been generally given to simple and unpretentious types. One of the specimens from Much Wenlock illustrates a direct and inex-



LUDLOW.

pensive expedient for protecting the doorway from the weather. It consists of a horizontal board, supported at each end by shaped brackets. Another example from the same place shows an artistic development of the same idea. The gabled type previously referred to is also found here in almost primitive simplicity and makes an interesting comparison with the more finished porch from Newcastle. The doorway of the Reader's House, Ludlow, exemplifies the kind of work executed by the provincial carpenter when classic influence in sadly corrupted form first reached the artizan class. The structural lines are still the old national vernacular, but foreign detail is crudely introduced in the lintel and the ornamental filling below. Ludlow possesses a remarkable number of fine



NEWCASTLE (STAFFS).

wooden porches and some exceptionally interesting examples of metal applied to the same purpose, two of which latter are given among the accompanying illustrations.

Another motive is apparent in the quaint combination of door and windows surmounted by a plaster cove and tiled roof, which transforms an otherwise plain cottage into an object of beauty (see next page). The letter B, presumably the initial of the builder, is curiously worked in the glazing bars of the fanlight.

The elaborate arched hood adorns the front of a formal three-storeyed brick building in Bewdley (see next page). This erection is more ostentatious than the others, and cannot be regarded as an unmixed structural success, and though striking in form and rich in detail it is scarcely a triumph of artistic design. The three-quarter columns of the Ionic Order were evidently introduced at the dictate of the prevailing passion for the Orders, rather than for any instinctive idea of appropriateness.

Oxford provides a more satisfactory specimen of this type of porch, and though later in date the Newcastle example fulfils all the requirements of the problem in a simple and fitting manner.

This meagre collection of porches gives but the faintest idea of the beauty and variety of the door-heads to be seen in the old towns throughout the length and breadth of our land, but they afford some conception of the versatility and ability of that now almost extinct class of artizans who worked with their brains as well as with their hands, and who had a genuine perception of grace and beauty—that noble faculty, no longer the blessed possession of the many but of a small and privileged few.

R.I.B.A. Standing Committees.—The new appointments include Mr. W. Flockhart and Mr. Walter Millard on the Art Committee; Mr. Butler Wilson on the Practice Committee; and Mr. J. Fletcher Moulton on the Science Committee.

EVESHAM.

Spoiling the Old with the New.

THE Society for the Protection of Ancient Buildings is exercising itself in regard to some proposed alterations in the more ancient parts of Evesham. Mr. Thackeray Turner, the secretary, says :—

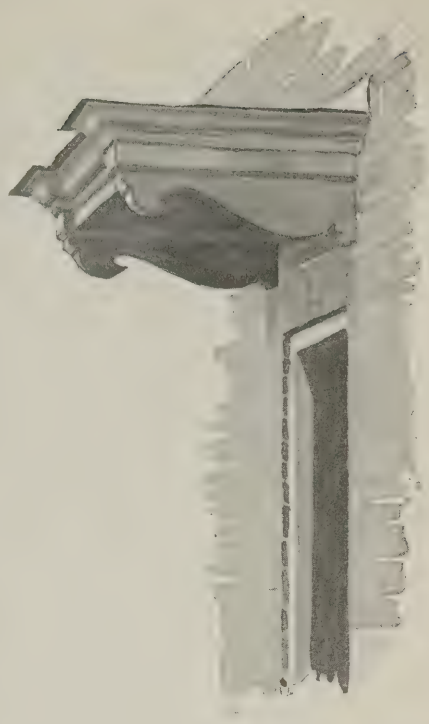
At the present time the Market Square contains scenes of the greatest beauty and interest. There are few more beautiful and venerable groups in this country than the old buildings in the north-east corner, where mellow mediæval walls and grey mottled roofs are pierced by the dark Norman gateway and surmounted by the quaint grey spires of the two churches, with the many-pinnacled tower of the Abbey to the left. In walking from the end of High Street towards the Abbey every yard develops a fresh combination of these groups of the greatest variety and interest; and the same may be said of the views in returning from the archway towards the old Booth Hall. The charm of these scenes depends in a great measure on the fact that the commonplace modern buildings on the east side of the Square cease about half-way along it, and the next to them is a very excellent example of the old half-timber houses of Worcestershire, with tiled gables and old-fashioned windows, which is low enough to allow the grand old bell-tower of the Abbey to be seen above it, and is ancient enough to agree in sentiment and in tone with the whole scene. My committee has learnt with extreme regret that this house is to be destroyed in order to make room for an extension of the modern brick library and corn exchange.

Similarly utilitarian methods have swept away the remains of Evesham Abbey in past centuries, and those who defend the present schemes of destruction have no right to criticise the vandals who have shorn Evesham of its former architectural glory.

My committee also regrets to notice that in a newly-published guide to the town it is taken for granted that a "modern improvement" which lately involved the removal of a good piece of old domestic architecture on the left of the passage leading to the square is less regrettable because the building that replaced it is "a half-timbered and gabled building which evinces a successful effort to effect modern improvements in a style harmonising with and characteristic of the best architectural features of the town." The fact is that to those who have any real grasp of the meaning and value of old architecture it is only an aggravation of the loss, and no compensation whatever, to see it replaced by a modern imitation. The



MUCH WENLOCK.



MUCH WENLOCK.

attempt in the present time to copy or imitate old half-timber houses such as Evesham is fortunate enough to retain never is and never can be satisfactory, but this fact alone ought to be enough. Everything that makes the old work precious or beautiful is the outcome of conditions which have long passed away and cannot be recalled. The abundant supply of massive oak timbers, for example, which made such buildings possible no longer exists, and the thin veneer of sham timbers which has rarely anything to do with the construction and is the only means a modern builder can afford in the direction of copying "half-timber" work is both pitiable and contemptible.

The committee was very sorry to find that the same guide-book refers to the old Booth Hall in the following terms: "The position of the old Booth Hall is a very inconvenient one, and the spirit of improvement which marks the recent progress of the borough may at no distant date demand its removal. We therefore perpetuate its memory by an illustration."

The Evesham Booth Hall is certainly one of the finest and most unspoiled buildings of its class in the county, and it is lamentable to find that in the community that should be most proud of it, and the most anxious to protect and preserve it, such words should be possible. It is very much to be hoped that they do not reflect the views of the people of Evesham.

Disclaimers.

In reply to the foregoing remarks the "Evesham Journal" says: "Mr. Turner appears to be alarmed at some threatened destruction of the 'venerable group' of buildings at the south-east (not the north-east, as he puts it) corner of the Market Place. Well, we agree that the really 'ancient' buildings in this corner—Abbot Reginald's Gateway for instance—should be sacredly preserved. But, so far as we know, the apprehended 'destruction' is purely imaginary. For the circulation of light and air and the preservation of the health of the people who have to live in this 'corner,' a little clearing-out would in the minds of all who are not crazy on the matter of 'preservation' be commendable; but we are not aware that even this is in contemplation.



DOORWAY AT LUDLOW. DRAWN BY JOHN HUTCHINGS A.R.I.B.A.

Next the assumed intention to 'destroy' the house adjoining the public library in order to increase the accommodations of this most useful institution terribly arouses Mr. Turner's susceptibilities. The false sentiment of this is truly pathetic. What can be reasonably discovered in this dilapidated tenement to make its removal for the extension of the library a matter to weep over? It is gabled and tiled, has old-fashioned (not so very old-fashioned either) windows and is largely constructed of lath and plaster. It may be 200 years old. What in the name of common-sense can be said of an outcry to preserve this place as an obstacle to a necessary extension of a most valuable public institution? . . .

"'Similar utilitarian methods,' Mr. Turner informs us, 'have swept away the remains of Evesham Abbey in past centuries.' Indeed! Where is Mr. Turner's authority for this statement? We fancy that the youngest historical student in the Public Library, whose 'utility' he appears to hold in contempt, would rightly inform him, if he does not already know it, that the ever-to-be-deplored sweeping-away of Evesham Abbey was not done in the smallest degree in the spirit of utilitarianism. It was the outcome of a political and religious revolution . . . Utilitarianism would have built something on the ruins, but these remain untouched even to this day . . .

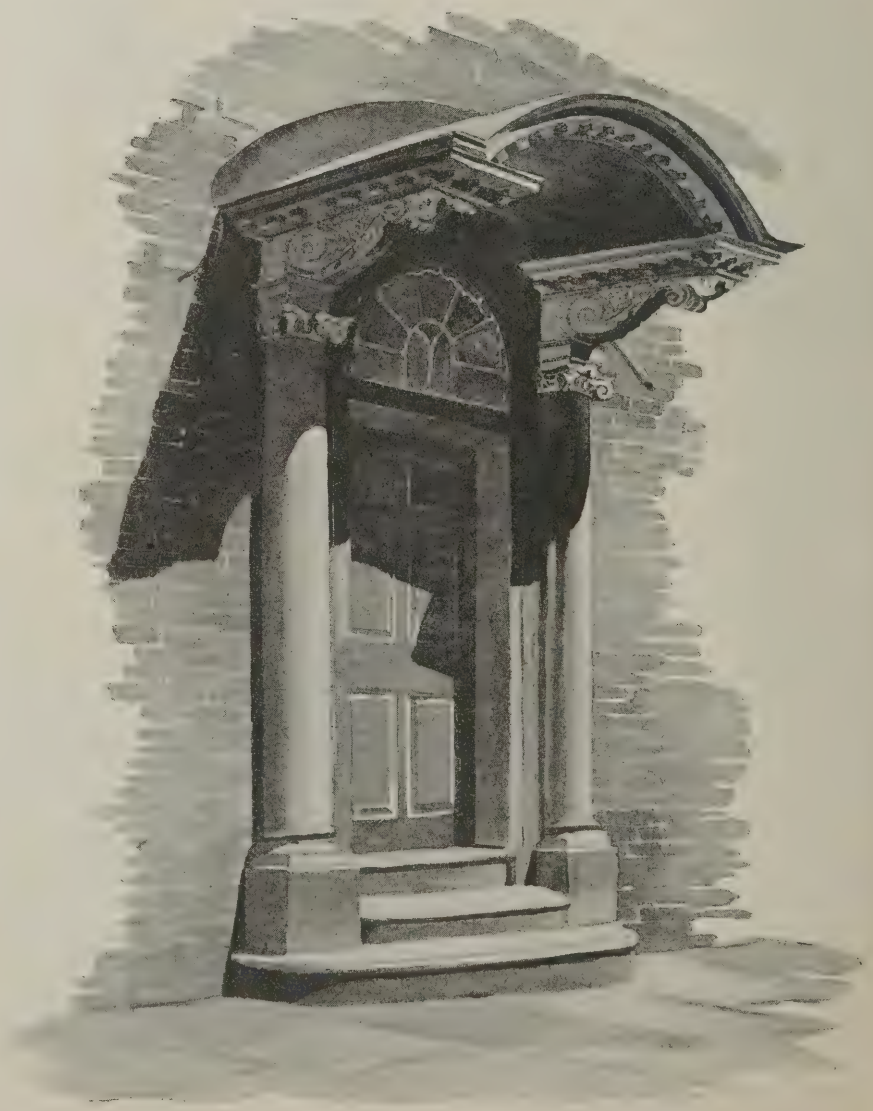
"His committee,' Mr. Turner says, 'regrets to notice' the removal of 'a good piece of old domestic architecture on the left of the passage leading to the Square.' This refers, of course, to the removal of the old bookseller's shop and adjacent buildings and the erection thereon of the new group known as the 'Journal Buildings.' The expression of 'regret' in such a connection is really grotesque. We doubt if a single member of the committee ever saw the 'good piece of old domestic architecture referred to, or if he did he could not have noticed its construction or its surroundings. It was in its frontage to the 'Square' a lath and plaster erection built at the end of the seventeenth century, a modern brick front with a parapet having been run up at the Bridge Street side to keep it up. Behind there was a conglomeration of offices, and adjoining it were, in the Market Place, two brick-built houses and in Bridge Street an offensive butcher's shop! Where the 'good architecture' was to be found is undiscoverable by anybody except Mr. Thackeray Turner and his committee. Perhaps it was in the bulging windows over the footway which had been so constructed because there was no other way of getting light and air. The (relatively) old buildings had no redeeming feature. For business they were inconvenient; for residence unhealthy. To weep over their replacement by the present group of handsome, convenient and healthy buildings is to shed crocodile's tears."

York House, Twickenham, is to be sold by auction.

A Fire at the Soane Museum in Lincoln's Inn Fields occurred on Saturday night, the fire having originated in a bedroom on the top floor, which set the roof ablaze. No damage, however, was done to the collection.

The Rossetti Window in Birchington Parish Church was badly damaged on Friday night last by thieves, who stole the collection boxes. The tomb of Rossetti in the church was designed by Ford Madox Brown.

The R.I.B.A. Autumn Examinations will take place as follows:—*Preliminary*, November 4th and 5th (applications to be sent in on or before October 11th); *Intermediate*, November 4th, 5th, 6th and 7th (applications as before); *Final and Special*, November 14th to 21st (applications by October 25th); examinations qualifying for the *Office of District Surveyor in London*, October 23rd and 24th (applications by October 9th).



A PORCH AT BEWDLEY. DRAWN BY JOHN HUTCHINGS, A.R.I.B.A.

Views and Reviews.

Practical Joinery.

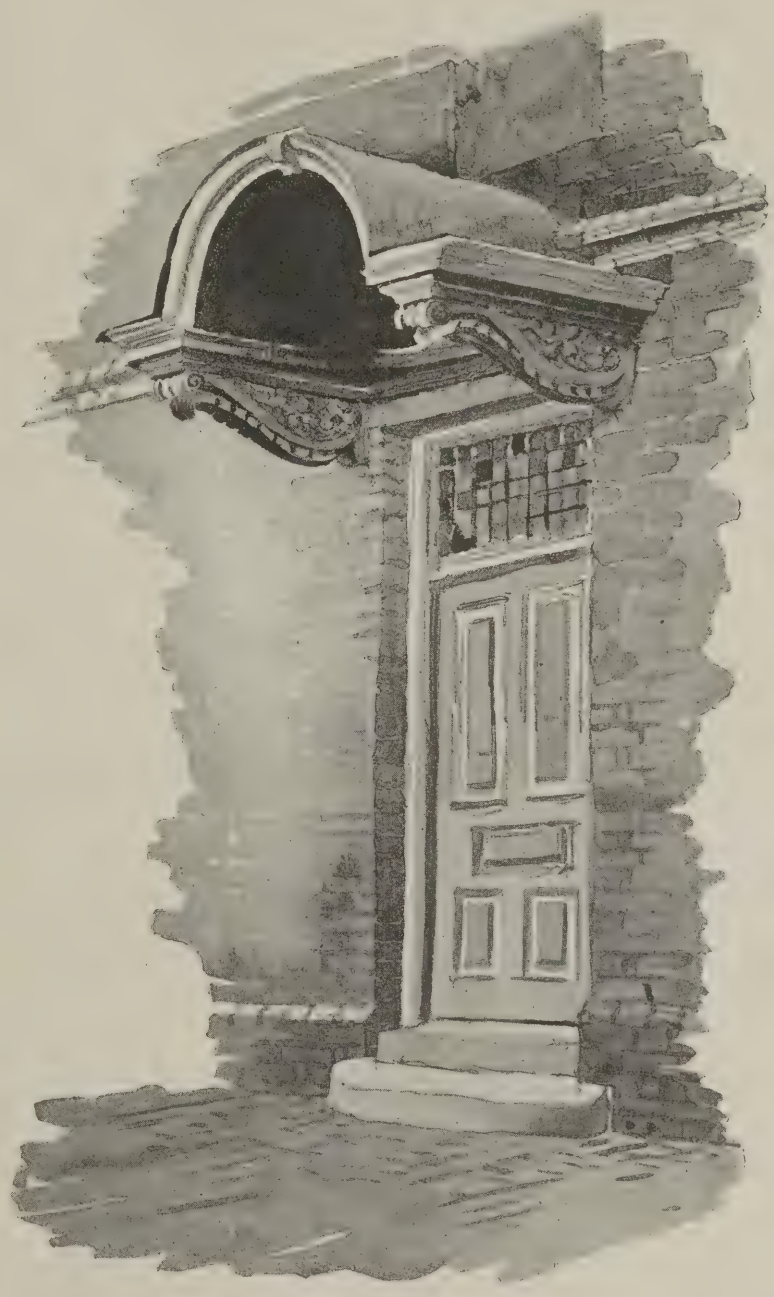
This book is the best on practical joinery which we have seen. Mr. Ellis, an old contributor to our columns, has excellent qualifications for undertaking such a task. His long experience as an instructor in joinery at the Trades Training Schools of the Worshipful Company of Carpenters fits him to explain, readily and simply, the principles of joinery. His phraseology is very clear throughout, and his whole treatment of the subject is modern. The methods of construction described are those generally adopted by skilful workmen, and are such as are in constant use in the best London workshops at the present time, and although handwork has been given the primary place the more important variations required for machine production have been dealt with. The book begins with a description of hand tools and workshop appliances, and then proceeds, with the help of some very clear diagrams, to explain workshop practice. Here is introduced a novelty in the shape of photographs of a joiner actually performing the different operations. This is an excellent idea, and shows at a glance what no lengthy description could do. The author then proceeds to deal in special chapters with joints; doors and gates; door framings, linings and finishings; windows and fittings; shutters, blinds and finishings; shop fronts and shop fittings; air-tight case work; fittings for banks, museums, libraries and churches; shaped, curved and bevelled work; miscellaneous fittings; stairbuilding; handrailing; mouldings; foremen's work; fixing joiner's work; notes on timber; description of woods used in joinery; and a glossary of technical terms and phrases connected with joinery. When it is said that all of these are dealt with comprehensively, many for the first time being properly treated, it will be realised how important a publication Mr. Ellis's book is. It will undoubtedly become a standard work on joinery. The author treats the subject, as it can only properly be treated, by proceeding from elementary principles to their application in everyday practice. The book is very well illustrated with a large number of scale and isometric drawings, and these in themselves should be of great service to architectural students who are naturally not in constant touch with the executed examples. It must of course be expected that Mr. Ellis has given the best methods of work, but the architect must be warned against a slavish following of his details as necessary to efficiency, for in practical work many of the safeguards he employs are omitted for the sake of economy of labour, the most important item in the cost of joinery. For instance, where Mr. Ellis is careful, as a good joiner would be, to avoid the use of nails wherever glued joints are stronger—there are far more nails used for the sake of saving labour than might be supposed. This is especially noticeable in the details of window frames and sashes. Then again the finish of actual work is never so fine throughout as the illustrations show, nor is it often necessary that it should be. In some cases too-accurately fitted work is apt to be more harmful than good, such as in constructing weatherproof casements (as shown on p. 136 in the book), where in the case of continued wet the wood would swell and prevent the opening or closing of the window. A rough joiner would probably be called in to ease the joints, with the consequence that it would not keep out the wet which it was intended to. We do not notice anything with regard to the details of window frames built flush with the exterior face of the wall, nor do we know of any book which gives such details. The publisher is to be complimented for publishing such a book in so admirable a manner. We look forward to Mr. Ellis's promised work on Carpentry.

"Modern Practical Joinery," by George Ellis. London: B. T. Batsford, 94, High Holborn, W.C. Price 12s. 6d. nett.

Liverpool Building By-laws.

The second edition of this most useful aid-book to the Building Regulations in force at Liverpool, arranged and annotated by Mr. Goldshaw, city building surveyor, with diagrams by Mr. James Dod, architect, has just been published, revised and enlarged. A similar book would be of the greatest service in London, and we are surprised that nothing has been done to supply the need. This handbook is intended for the use of architects and builders, and does not give the actual wording of the Acts of Parliament and the by-laws from which it is compiled, nor does it include purely legal clauses. The interpretations of any clause that has been decided in any law case are carefully noted. The wording of the clauses is most clearly done and arranged in excellent order. There is a very comprehensive index. The work is divided into two volumes, the second consisting of diagrams (many in colours) illustrating the application of the regulations. This is, perhaps, the most useful part of the work, though, of course, the first is of great importance and use also. An immense amount of time, labour and worry is avoided by this second volume, which shows at a glance the interpretation of any clause in the regulations. On the diagrams note is also made of the governing conditions and exceptions, &c., so that it is not necessary to wade through the regulations to see if any others apply to the case in hand or whether it is an exception to one or other.

"The Manual of the Building Regulations in force in the City of Liverpool," arranged and annotated by William Goldshaw, City Building Surveyor, with diagrams by James Dod. Liverpool: C. Tinling & Co. 53, Victoria Street. Price 7s. 6d.



DOOR AT NEWCASTLE (STAFFS). DRAWN BY JOHN HUTCHINGS, A.R.I.B.A.

Cisterns and Tanks.

Prof. Henry Adams has just published Part III. of his series of books on "Designing Ironwork." This part contains notes upon cisterns and tanks in general, together with detail drawings and calculations for a cast-

iron tank to hold 15,000 gals. This series of books is very clearly written and the present one is a welcome addition. It contains notes on materials used in the construction of cisterns and tanks, and the author then proceeds to discuss the formulæ for the calculation of the constructive details. He next deals with the form and details of tanks and the method of construction. Particulars of large tanks which have failed form a very interesting part of the book. Notes are also included on the preservation of tanks and pipes. The illustrations are very clearly drawn.

"Designing Ironwork: Part III., Cisterns and Tanks," by Henry Adams, M.I.C.E., M.I.M.E., F.S.I., Professor of Engineering at the City of London College. Price 2s. Published by the author at 69, Victoria Street, E.C.

LIVERPOOL CATHEDRAL COMPETITION.

The Advisory Architects' Report.

THE following is the report of Mr. G. F. Bodley, R.A., and Mr. R. Norman Shaw, R.A., advisory architects, on the designs submitted in the preliminary competition for the proposed cathedral at Liverpool:—

Of the great importance of ensuring a fine design for the proposed cathedral there can be no question. Truro alone in England has had a new cathedral, the first built for many generations. Truro is but a county town, while Liverpool is one of the largest and most important of our cities.

The new cathedral must be a stately, a dignified and a beautiful building. It must be suitable for the services of the English Church, and be capable of holding large congregations. All this is obvious.

The Committee having determined on a competition, it is our duty to select the best designs submitted in this preliminary competition, and then to invite their authors to compete for the great work, in accordance with the regulations that may be laid down for their guidance.

What seems to be necessary is a design having a distinctive character of its own, and one not without originality. A design with a striking unity of effect and idea.

Gothic Pre-eminent.

We were prepared to find more designs of a Renaissance or a Classical manner. We were surprised to find so few in those styles, and those, we feel bound to say, not commanding nor remarkable. The main body of the best designs sent in are Gothic. This seemed to point to Gothic as the style from which we should find it practical to select. And, indeed, that manner is accepted by most as generally the suitable one, except under special circumstances, for church-building. In making a selection there seemed no doubt but that our own English phase of the style should be adhered to.

Mediæval Cathedral Plans.

Many of the designs sent in have plans more or less like numerous fine mediæval cathedrals, with many chapels clustering round the eastern end of the choir. It is no doubt an arrangement of much beauty. One or two such chapels may be desirable, as being very useful in bringing comparatively small congregations together for early or evening services, but many such chapels would not seem to be appropriate for the uses of the English Church. There should certainly be one or two such chapels, but we suppose not more would be needed. Modifications of many of the plans submitted would therefore seem to be necessary. How far what we have said on this point should be embodied in the instructions to be given for the final competition we leave to the consideration of the Committee.

We feel that the object of the competition is to enable the Committee to find out the best man for the work. What he submits may be thoroughly examined and discussed, and, if it seems desirable, may be modified or improved on.

The opportunity, the great opportunity, must not be lost for the erection of a really stately and a beautiful building, one of striking proportions and of delightful detail. Our old ecclesiastical buildings afford many such examples. Not, indeed, that they should be copied, for Liverpool Cathedral must be an original work of art and have a character of its own—one fitted for the requirements of the present age, and one specially designed for its site. The spirit of our best architecture may, however, well be caught, and its magnificent traditions may be recovered and handed on.

Whatever style is adopted there should be that nobility of expression, and that refinement of feeling, that is so characteristic of all the best architecture of the great times. We may add that a noble simplicity, enhanced by touches of beauty, is not a thing to be afraid of.

In judging the designs one must take care to discern the real effect that the building would have, and not to be led away by any clever delineation of a conception that may not be really good. This is evident, but a first impression given by a clever and beautiful drawing, even though it be of a poor design, may be misleading and deceptive.

We shall look forward with interest and pleasure to the work of reporting to the Committee on the designs to be sent in for the selection of one that may be not unworthy of your important and great city of Liverpool.

There has happily been some revival of taste and knowledge of architecture in recent years, and this new cathedral should show a dawning sign of that improving state of feeling, and mark the period as one of greater advance towards the beauty and the dignity that characterized the great days of art; and above all, it should be an example of cultured and religious feeling in church-building.

The Portfolios.

With regard to the plans submitted we beg to report that we have examined the various portfolios of designs, and all the drawings that were hung on the walls, with great care and with the deepest interest. The number in all is 103: of these thirty-three are designs prepared expressly for this competition. They represent much labour, and we may also say a considerable amount of talent. Twenty-three are sent as evidence of skill and ability to design a cathedral, and consist mainly of designs which have been submitted mostly in competition for large churches in different parts of the world.

The remainder are a miscellaneous collection of photographs, drawings and sketches partly ecclesiastical and partly secular. Though many of them are of much excellence, they do not show any evidence that their authors have any special claim to be considered aspirants for the work of building a cathedral. It is vain to shut one's eyes to the fact that many of the competitors in the last class have taken absolutely no trouble. They have simply sent in a portfolio containing few, or many, photographs or drawings which they happened to have by them; whereas in the cases to which we first referred, where special designs have been prepared, the competitors have, many of them, taken great care and trouble, and have done their best to respond to the invitation of the Committee.

From the plans sent in we have selected five that we consider show their designers to be capable men. They give evidence of considerable knowledge of old work, great care in design, and originality of a sound and practical nature. Not the originality which has little aim beyond being eccentric for the sake of being considered original, but which does not regard beauty and fitness as necessary.

These five we suggest should be asked to prepare complete designs for the cathedral, in accordance with the conditions to be laid down by the Committee.

This seems a small number to name out of such a long list of competitors, but, on the other hand, it may lead to greater effort being made to conceive and delineate a fine design and with greater hope on the part of the designer of success, and, for the world, for an ultimate and satisfactory result. These designs are numbered 20, 45A, 68, 71, 95.

In addition to the above we consider it would be a gracious act, and one that would be appreciated, to nominate a certain number for honourable mention, as a distinct recognition of considerable skill shown sometimes in planning and sometimes in design, though we were unable to award them a still more honourable place. We selected eight—namely, Nos. 17, 37, 41, 44, 45, 46, 84 and 94—for such honourable mention.

The five architects referred to in the report are:—

20. Austin and Paley (Lancaster).
45A. C. A. Nicholson (London, W.C.).
68. G. Gilbert Scott (London, S.W.).
71. Malcolm Stark (Westminster).
95. W. J. Tapper (London, W.C.).

Those honourably mentioned are:—

17. Sir Thomas Drew (Dublin).
37. J. Oldrid Scott (Westminster).
41. A. H. Skipworth (London, W.C.).
44. H. C. Corlette (London, W.C.).
45. C. A. Nicholson (London, W.C.)
46. F. Walley (Chester).
84. James H. Cook (Liverpool).
94. Reilly & Peach (London, S.W.)

The foregoing report has been adopted by the Executive Committee.

Some Facts.

In the report of this Committee to the General Committee the following facts are mentioned:—The Bill passed through both Houses of Parliament and received the Royal Assent on August 8th, and, according to agreement, the purchase-money of the St. James's Mount site (£10,000 in addition to £1,300 for the reversionary interest in the several leases of the dwelling-houses on the ground) is payable to the Liverpool Corporation on February 8th next. The Executive Committee have reserved to themselves the right of inviting any architect or architects to submit designs and plans in the final competition: each architect taking part in such competition to receive an honorarium of 300 guineas. The advisory architects are to receive an honorarium of 500 guineas each. Towards carrying out the scheme the sum of £154,114 has been promised, of which £71,646 has been received and £60,543 invested.

The Abbey of Hautecombe (illustrated on the opposite page) is situated in the Haute Savoie, in the Burgundian district of France, twenty-two miles south of Geneva. The building, of late Flamboyant Gothic, is unique in character. It was once as elaborate in its external design as the church of Brou, in the suburb of Bourg-en-Bresse; but even now in its rebuilt condition it is attractive and full of interest.

The New Workshops for the Fechney Industrial School at Perth are being erected at a cost of about £2,000. Mr. David Smart is the architect. The contractors are:—Masonwork, Alexander Beveridge; joinerwork, Thomas Forgan & Son; slaterwork, James Buchan & Son; plasterer, John Peebles & Son; plumber, James MacLeish; ironwork, Messrs. Robertson & Robertson, Perth Foundry.

SMALL-POX HOSPITALS.

Government Circular.

ON Thursday last the Local Government Board issued a circular respecting small-pox to town councils and urban and rural councils throughout the country. In it the following appears:—

Looking to the extreme importance of the immediate isolation of small-pox cases, the Board would urge upon the council that, if they have not already done so, either alone or in conjunction with other councils, they should without delay make arrangements for obtaining suitable hospital accommodation for any cases that may occur in their district. In view of the liability of small-pox to spread around hospitals in which patients suffering from that disease are collected, such hospitals should be placed in sparsely-populated situations. The Board require, as regards hospitals for small-pox, the cost of which is defrayed out of borrowed money, that particular conditions should be complied with, and it is important that the like conditions should be observed in respect of such hospitals when the cost is defrayed out of current rates. These conditions, which are set out in the Departmental Memorandum "On the Provision of Isolation Hospital Accommodation by Local Authorities" are briefly as follows:—

1. The site must not have within a quarter of a mile of it either a hospital, whether for infectious diseases or not, or a workhouse, asylum or any similar establishment, or a population of as many as 200 persons.

2. The site must not have within half a mile of it a population of as many as 600 persons, whether in one or more establishments or in dwelling-houses.

3. Even where the above conditions are fulfilled, a hospital must not be used at one and the same time for the reception of cases of small-pox and of any other class of disease.

Looking to the difficulty frequently met with in obtaining a suitable site for a small-pox hospital, and also to the circumstances that small-pox patients commonly bear removal well, while their removal is more readily consented to than that of patients suffering from other infectious diseases, a small-pox hospital may conveniently serve a larger area than an isolation hospital for other infectious diseases. There is, therefore, often advantage in a combination between districts for the purpose of providing small-pox hospital accommodation. Where no hospital suitable for receiving cases of small-pox exists, it may be necessary to make temporary provision for the reception of such cases, *e.g.*, by acquiring possession of an existing house having sufficient land on which huts or tents for patients may be erected. The provision of hospital accommodation, however, should not be deferred until small-pox has actually occurred, or dangerous delay may be involved in securing a suitable site or premises.

Other requirements in connection with any hospital (*e.g.*, ambulance, nursing staff and medical attendance, water-supply and sewage-disposal) should also be considered beforehand.

NORTHERN A.A.

THE members of the Northern Architectural Association recently paid a visit of inspection to some large new buildings at Newcastle-on-Tyne. They first inspected the Cathedral Buildings near the top of Dean Street (Messrs. Oliver, Leeson & Wood, of Newcastle, architects). The buildings comprise five storeys, exclusive of the ground floor and basement. The exterior is of red brick, with a green slate roof, and oriel windows of carved oak having panels modelled in terra-cotta, whilst the skyline is broken up into gables. The upper part of the buildings is relieved by being covered with rough-cast, and at the fourth floor a projecting balcony has been formed the full length of the building to give easy access to the roof. The iron columns on the ground floor are exposed instead of being concealed by mirrors or other devices. The contractor was Mr. Stephen Easten; Messrs. Richardson carried out the painting work, Messrs. Bland the electrical work, and Messrs. Walker and Coxon the plumbing.

The palatial building in Collingwood Street, built for the Sheriff of Newcastle (Mr. W. J. Sanderson), was next inspected. Messrs. Oliver, Leeson & Wood were also the architects for this building. Excluding the ground floor and basement, there are five storeys, and from the top a fine bird's-eye view can be gained southward and also partly to the west. The ground and first floors are treated together as a continuous arcade, formed by granite piers carrying



THE ABBEY OF HAUTECOMBE HAUTE SAVOIE, FRANCE.

arches having the soffits in panels, with carved rosettes. The plan of the building is a central octagonal hall, from which the corridors diverge to the east and west on every floor. There is a staircase with marble steps and newels, and a wrought-iron balustrade to the top of the building. At either side of the octagonal hall are passenger lifts. The corridors and octagonal hall are laid with ceramic mosaic, and advantage has been taken of the octagonal form to produce an architectural effect with monolithic marble columns. This entrance hall is carried up to the first floor and finished with a dome of enriched plasterwork. The entire western portion of the building has been acquired by Messrs. Barclay & Co., bankers. There are eighty-nine offices, and it is understood that the premises will be ready for occupation next month. The contractor is Mr. Alexander Pringle; the marble and mosaic work has been carried out by Messrs. Emley & Sons, of Newcastle, and the plastering by the Fibrous Plastering Co., of London.

Builders' Notes.

The Value of the New Buildings in Glasgow sanctioned during the past year amounted to £2,549,698.

Failures in the Building and Timber Trades during the week ending September 27th last were six, as compared with seven during the corresponding week of 1901 and fifteen in 1900.

Partnership Dissolved.—The partnership lately subsisting between Messrs. Herbert Matthers, Wybrants Olphert, and Samuel Lewis Jones, formerly carrying on business as colliery proprietors and brick manufacturers, at Resolven, near Neath, Glamorgan, under the style or firm of Gored Merthyr Colliery and Melincourt Brickworks, has been dissolved by mutual consent. All debts due to or owing by the said late firm will be received and paid by Mr. Samuel Lewis Jones, who will continue the business in his own name.

Ontario Timber Exports Prohibition.—An Order in Council was recently passed by the Ontario Government prohibiting the exportation of hemlock logs after April 30th next. Pine is also prohibited. Of late years a considerable trade has sprung up, owing to the increasing value of these classes of timber.

A Co-operative Building Firm.—A company has been formed and registered under the title of the Amalgamated Builders, Ltd., by the Amalgamated Society of Carpenters and Joiners, which has a membership of 70,000. The members have adopted their general council's proposal to take over and develop the joinery works established at Hull, Blackpool and Bradford, and have decided that the 2s. levy agreed upon in October last should be applied in furtherance of the scheme in other suitable districts. It is stated that the new company will compete with private firms for work in the areas covered.

The Dewsbury Crane Disaster.—Mr. P. P. Maitland, county coroner, last week held an inquest on the bodies of three of the men killed on Thursday week by the collapsing of a crane at the Soothill Quarry, owned and worked by Messrs. James R. Akeroyd & Sons. Mr. W. H. Pickering, H M. Chief Inspector of Mines and Quarries for Yorkshire and Lincolnshire, said the crane appeared to have been well adapted for the work designed, and in his opinion the cause of the accident was the collapse of the pillar on which the footstone was resting. The mortar contained sufficient lime, but either the lime was not freshly slaked or properly mixed, or the stone had recently been fixed, for the mortar had not set and had not adhered to the stone. When mortar is in such a condition it is more of the nature of a lubricant than a binder. Mr. R. Akeroyd, managing director of the firm, stated that the mortar used at the quarries was composed of South Elmsall lime and river-sand. Instructions were always given to mix the mortar in the proportion of a ton of lime and three of sand. He could not account for the difference in the samples of mortar produced. The jury returned a verdict that the men met their death accidently from the collapse of a crane, in the fixing of which improper mortar had been used.

Fire Protection in London Theatres.—After their first meeting last week the newly-formed Association of London Theatre Managers issued a communication to the Press in which they asked for finality of decision in regard to fire-prevention in their theatres. "Failing this, they would feel themselves justified in appealing for the creation of a permanent Government Department attached either to the Lord Chamberlain's Office or to the Home Office. The managers have already expressed their willingness to defray the cost of such a department out of their own pockets by a system of taxation. They feel certain that such a permanent department, assisted by experts, would secure a continuity and uniformity of administration which, from the nature of the prevailing system, is scarcely to be expected. The managers refer to the report from the Select Committee on Theatres and Places of Entertainment, printed by order of the House of Commons on June 2nd, 1902. Clause 4 says: 'Referring to those resolutions of the Council passed on the 5th of April, 1892, wherein it is suggested that in certain cases (therein specified) where certificates of safety have been granted, periods of grace of seven years, ten years and five years respectively should be allowed to the owners of theatres and music-halls during which no further requirements for structural alterations should be made, we desire to express our agreement in the principle that when owners or lessees have fairly fulfilled obligations imposed upon them in these respects they ought to have all reasonable safeguards against unnecessary interference.'"

Surveying & Sanitation.

The Royal Institute of Public Health has accepted the invitation of the Lord Mayor of Liverpool to hold its annual congress in that city next year. In all probability the meeting will take place about the third week in July. Lord Derby has accepted the position of president at the Congress.

New Park for Manchester.—The Lord Mayor of Manchester last week formally opened Heaton Park for the use of the general public. The park, which is situated within three miles of Manchester, contains nearly seven hundred acres, and was purchased by the Corporation recently from Lord Wilton for the sum of £230,000.

Insanitary Areas in Leeds.—The work of demolishing the insanitary areas of Leeds continues. The Sanitary Committee of the Corporation recommends the City Council to accept the tender of Messrs. Isaac Gould, Ltd., for the construction of an underground subway in York Street and Marsh Lane for the sum of £3,307 8s. This is in connection with the York Street scheme. It is also proposed to purchase further properties in the Quarry Hill district with a view to clearing away unhealthy areas there.

Engineering Notes.

A Roman Smelting Works Discovered.—The workmen employed on a deep drainage scheme at Stamford have come across the site of a Roman iron smelting works.

A New Pumping Station for Portsmouth Dockyard is to be erected to fill and empty the docks used for destroyers. The contract for the building has been placed with the Westminster Construction Company.

The Society of Engineers paid a visit on Wednesday, September 24th, to the engineering works of Joseph Baker & Sons, Ltd., and the machine works of the Wicks Rotary Type-casting Co., both of which establishments are situated in Hythe Road, Willesden Junction.

London Bridge Widening.—On Saturday last the workmen placed in position the east girder used in the construction of the temporary footbridge on the north-west side of London bridge. Six weeks, however, will elapse before this temporary bridge is opened for traffic. The construction of the bridge on the east side has been commenced, and when the two are completed all pedestrians must pass over them for the next two years. The huge iron girders which have been placed in position weigh over 800 tons, and the cost of constructing these temporary bridges will be £30,000.

The Tees Iron Industry.—A working agreement between the firms of Dorman, Long & Co., Ltd., and Bell Brothers, Ltd., both of Middlesbrough, is shortly to be made, and a special meeting of the shareholders of the former has been called to consider the matter. Sir Lowthian Bell will become chairman of Dorman, Long & Co., and three of the directors of Bell Brothers are to join the board, Mr. Dorman taking the position of vice-chairman and managing director. The capital of Dorman, Long & Co. when this operation is completed will be £1,ccc,coo. The two firms concerned are the largest iron and steel manufacturers of the North.

The Smaithwaite and Smithy Bridges near Thirlspot, on the much-frequented coach road between Keswick and Grasmere, have been recently respectively rebuilt and widened. The new bridge at Smaithwaite is practically in a direct line with the roads on both sides of the gill, and is of such height as to make the road almost level between the hills on the opposite banks. The road between the two parapets is 22ft. 6in. wide, compared with a 13ft. road on the old bridge; and the parapets are 3ft. 6in. above the level of the road-surface. The new bridge has a span of 50ft. The rise of the arch at the crown is 12·5ft., and the thickness of the abutments is 10ft. It is placed on the east side of the old bridge (which still remains). The work is sneck or broken faced. The arch is massive and in keeping with the dam of the Manchester Corporation Waterworks, which impounds the water of Thirlmere close by. A little further along the road in the direction of Grasmere another improvement has been effected in the lowering of the crown of the Smithy Brow and the widening of the Smithy Bridge (which crosses the How Beck) by the addition of a skew extension to the west or high side of the old bridge. The span here is 20ft.; the angle is 40 degs. and the oblique span 31·114ft. The hill between Smaithwaite and Smithy Bridge has been lowered 6ft. and the gradient over Smithy Bridge is now 1 in 19 throughout. The stone used at both bridges is the Aspatria red freestone, and the total contract price for the two bridges has been £2,036—£704 for the Smithy Bridge and £1,332 for Smaithwaite. Mr. Telfer, of Langholm, was the contractor; Mr. Bell, the county surveyor and bridge-master, was the engineer.

Enquiries Answered.

The services of a large staff of experts are at the disposal of readers who require information on architectural, constructional or legal matters. Questions should in all cases be addressed to the Editor. The querist's name and address must always be given, not necessarily for publication.

Preserving an Old Oak Chimney-piece.

BIRMINGHAM.—BRUM writes: "Which is the best way to preserve a valuable old oak chimney-piece which is decaying badly and is full of insects?"

The querist might have been more explicit in indicating the probable nature of the "decay" referred to. "Insects," too, is rather a vague term, but surmising that the trouble is of that order when wood is said to be "worm-eaten," little hope can be held out of any treatment proving really effectual in ending the trouble. The rottenness of worm-eaten wood is due to the persistent boring or tunnelling of some insect—variously termed louse, weevil, &c.—or, more probably, the larva (worm or maggot) of some insect of whose life-history little or nothing seems to be known. It has been stated to be the larva of a small brown beetle, about $\frac{1}{8}$in. long, which arrives at maturity in the month of July; but the insects usually seen about wood that is worm-eaten are very agile louse-like creatures. Whether these are the cause of the borings or merely tenants of the tunnellings, the writer cannot say; they seem, on a cursory examination, to be akin to the insects which infest old books (book-worms?). Various treatments are recommended as palliatives Impregnating the affected parts with benzoline, benzine or paraffin, though useful, has self-evident disadvantages; oil of cassia is said to be effective; some use a decoction of bitter apple in water; a more drastic though tedious remedy is to inject in each hole, using a hypodermic syringe, a solution of bichloride of mercury (corrosive sublimate) made by dissolving 1oz. of the salt in a pint of water. Another recipe for the solution is mercuric chloride ($\frac{1}{4}$oz.) dissolved in water (20zs.) and methylated spirit (20zs). Both these mixtures are rank poison, and should be used with extreme care. H. E.

Municipal and Sanitary Engineers.

LIVERPOOL.—DOMINO writes: "Where can I get a prospectus of the examinations for municipal and sanitary surveyors?"

Apply to the secretary of the Incorporated Association of Municipal and County Engineers, 11, Victoria Street, Westminster, S.W.

Value of Land in London.

HARROW.—A. B. writes: "What is the value of land in Piccadilly near or facing Green Park? Is there a record kept of sales in London?"

The value of land in Piccadilly would depend almost entirely upon its extent, shape and position, and it would be most misleading to suggest any sum without having this information. A record of sales in London is kept by the "Estates Exchange," whose offices are at the Auction Mart, Token-house Yard, E.C. The information they supply, however, is confined to members, who pay an annual subscription towards the cost of keeping up the record.

HAMPTON & SONS.

Copper-Covered Spires.

MANCHESTER.—E. W. writes: "In covering a spire with copper which I wish to develop green, is it necessary to use any special copper? I have been told that the modern copper has had some property extracted which often prevents it becoming green. I should like to know if this is true, or whether it is only the question of the state of the local atmosphere which is the determining factor."

Of course the alloy in the copper has some very slight effect on the tint of green which the copper acquires, but the question of it going green entirely depends upon the atmospheric conditions.

Evening Classes in Building Construction in London.

LONDON, W.—SMITH writes: "Which is the best evening school in London for building construction (honours stage)?"

There are a number of schools which have good classes in building construction. We might suggest that you go to the Polytechnic in Regent Street, W.

Pocket-Book of Building Memoranda.

NANTWICH.—J. F. H. writes: "Is there any pocket volume giving general information suitable for a builder, and embracing the building trade throughout?"

Get Hurst's "Architectural Surveyor's Handbook," published by E. & F. N. Spon. Ltd., price 4s. nett.

Indices to the "Builders' Journal."

DURHAM.—A. M. D. writes: "Please state with which number of your journal the volume before the last one begins; also one or two volumes before this. I want the numbers containing the indices"

The index to Vol. XIV. appeared in our issue for February 19th, 1902; for Vol. XIII. in August 28th, 1901; for Vol. XII. in February 13th, 1901; for Vol. XI. in August 8th, 1900; and for Vol. X. in February 7th, 1900.

Sketching around Liverpool.

AINTREE.—DRAUGHTSMAN writes: "Kindly give me some information about architectural work to sketch in the Liverpool district, particularly the country lying around Sefton and between Liverpool and Ormskirk."

Sefton has a fine church of the time of Henry VIII., containing monuments and brasses and good carving. Ormskirk has a church with detached tower and spire, said to have been erected to the memory of Edward, third Earl of Derby, in 1572. Allerton contains Allerton Hall, which is partly old and partly new. There are several old manors in the villages near Liverpool, of which the most ancient and curious is Speke Hall, built mostly in timber and plaster, and which, when entire, enclosed a square area or court. It was formerly surrounded with a moat. Little Moreton Hall (described and illustrated in the BUILDERS' JOURNAL for January 8th last) is of the same character, and extremely beautiful, while Prestbury Church and Vicarage are both worthy of a visit, but they scarcely lie in the district mentioned in the question. G. A. T. M.

Reciprocal Diagrams.

PROBATIONER writes: "The following question was given at an Intermediate Examination of the R.I.B.A.: 'What do you understand by the term reciprocal diagram? Give the reciprocal diagram to an ordinary king-post roof-truss. What is the object of a reciprocal diagram? Illustrate this part of the answer by reference to the king-post roof-truss and its reciprocal.' Kindly answer this."

The reciprocal diagram is the stress diagram, the method of obtaining which was explained at length in the articles on "Building Construction" in our issues for October 30th and November 6th, 1901.

Surveying Expeditions.

HALTWHISTLE.—E. H. writes: "How could I obtain a position in a surveying expedition abroad, and what are the qualifications necessary for such a post?"

Surveying parties of this description are generally made up privately, but occasionally vacancies are advertised in the principal engineering papers. The chief qualifications necessary are sound physique and a thorough practical knowledge of land surveying in all its branches, while experience in dealing with native races is also extremely valuable. G. A. T. M.

Book on Glass-making.

GLASS writes: "Is there any book giving a description of furnaces, &c., as used in the manufacture of glass?"

"The Principles of Glass-making," by H. J. Powell (George Bell & Sons), will probably serve your purpose.

Domes.

LONDON, N.E.—J. W. F. writes: "Are the beds of the courses of stonework in the pendentives of a dome level or do they radiate from a centre, like those of the dome proper?"

The joints radiate from a centre the same as in a dome.

Architectural Study.

W. W. writes: "I am in an architect's office. The only evening school I can attend does not hold classes in architecture until the fourth year of a building course, and then not of much worth. What books on architecture should I study? I have a copy of Mr. Phenè Spiers's 'Orders.'"

You cannot study architecture properly until you have a knowledge of building construction. Read Banister Fletcher's "History of Architecture," measure and study old buildings, and also go over and study recent developments in design.

Plenum System of Ventilation.

SHREWSBURY.—G. D. L. writes: "Kindly give full particulars of the 'plenum' system of ventilation, or inform me where I can procure such."

See Specification No. 5, and F. Dye's "Warming and Ventilating Buildings" (E. & F. N Spon, Ltd., price 10s. 6d. nett).

Chancel and Nave Roofs.

WINTON writes: "Should the roof of a chancel be higher or lower than the nave roof? Did this apply to churches in the Middle Ages?"

The line of roof throughout is, in my opinion, better unbroken—this is almost invariably so in large churches belonging to the Religious Houses, the difference in height being marked only by the rise and steps from the body or nave to the chancel and from the chancel to the sacrarium. Some designers prefer to denote a difference by placing a cross or flèche over the point of separation between the chancel and the nave. The difference in the height of the roofs is mostly found in country districts, and came about through the narrowing of the chancel and the adoption, as a consequence, of the chancel arch, the narrowing of the chancel necessitating (if the same pitch was kept) the lowering of the roof. In the Middle Ages one finds all varieties in use. There are authorities who state that wherever churches exist with the roof of the chancel higher than that of the nave, these churches belonged to the Dominican order. Again there are others who say that the nave and its roof, where lower, was usually of later date, and this explanation certainly would account for the difference, as the Perpendicular work was less in pitch than the earlier styles. Finally, some authorities give as a reason that when the chancel was higher than the nave in buildings belonging to the Regular Clergy, it was to show that the faithful laity used the nave on sufferance only and were subservient to their masters, the Elect.

A. H. R.-T.

Bricks and Mortar.

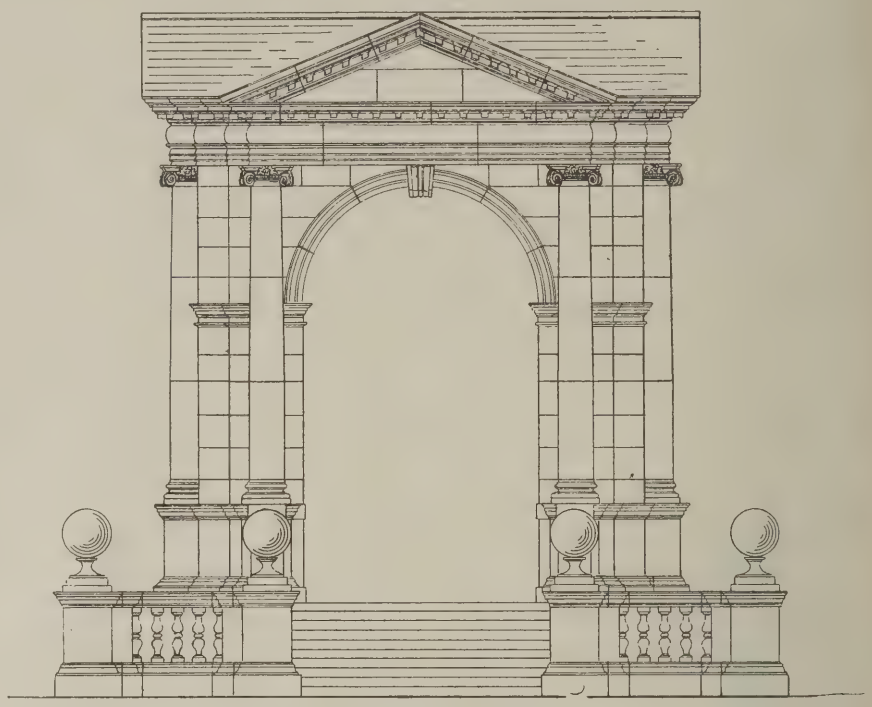
Aphorism for the Week.

Architecture differs from her sister arts of painting and sculpture in this, that while they directly originate from a feeling for beauty, and are either wholly independent of utility or only accidentally connected with it, architecture results in the first instance from necessity, beauty being a superadded grace.

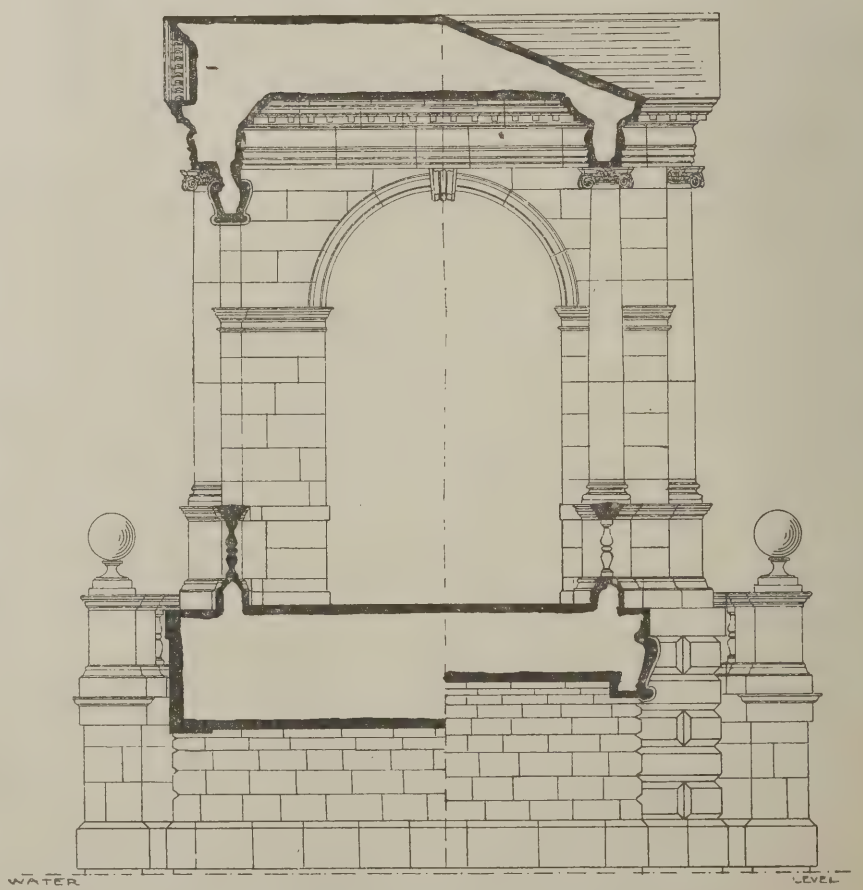
SIR GILBERT SCOTT.

Our Plates. THE Palladian Bridge at Prior Park, Bath, situated in one of the prettiest spots in the county of Somerset, spans the first of three small lakes which descend by falls, the first coming in the centre of the bridge, as may be seen on the plan. The bridge is at the bottom of a "comb," lying almost due north and south, the upper slopes being thickly wooded. At the head of the "comb" lies Wood's splendid mansion of Prior Park, built for the famous Ralph Allen between the years 1735 and 1743. Neither the date of the building of the bridge nor the name of the builder is actually known, but among the numerous dates and initials cut into the stones are two—I. D. 1777 and I. T. 1782. The bridge was copied from that at Wilton (1736), and was probably erected between the years 1750 and 1760. Mr. Gilbert E. Peto made the measured drawings which we reproduce, with the assistance of Mr. Mowbray Green, author of "The Eighteenth-century Architecture of Bath."—The restaurant and club in High Street, Stratford, E., is the first of a series intended to be erected by the West Ham Club and Restaurant Co. The company has been formed for the purpose of establishing and conducting in the county borough of West Ham (and elsewhere should it be so determined) club-houses and restaurants, and of providing therein refreshments, sleeping accommodation, amusements and recreation for the industrial classes. Beyond the accommodation shown on the plans there is a basement containing a large coffee- and smoking-room, the kitchens, and the necessary stores and heating-chamber. The work has been carried out at a cost of about £14,000 by Messrs. Kingerlee & Sons, of Oxford, under the superintendence of the architect, Mr. S. B. Russell, A.R.I.B.A., of 11, Gray's Inn Square, W.C.—The design for the groined vault is almost self-explanatory. The plan having been put down and the height of the ridge line settled, it will be noticed that the transverse rib (shown shaded in section) was first drawn with centre on the base line of the springing. From a middle point on the curve a vertical was dropped on to the base line, and at the point where it meets it an arc was drawn with centre at wall line. At the points where this arc cuts the lines of the ribs on plan, verticals were raised to the same height as the vertical dropped from the transverse rib at first. These are points on the curves of the ribs. The other points necessary to find the centres from which to strike the curves of these ribs are of course found by raising verticals from the ends of ribs lines (*i.e.*, where the centres of the bosses are) to the same height as the transverse rib, for the ridge is level. There are three points now determined on every curve, namely, at the ridge, at the springing, and at a point the same height as that taken on the transverse rib. These three points determine the centre to strike the curve from. The wall- and ridge-ribs are drawn independently and the height of the latter determines the curve of the intermediate rib v v, as the vertical from the boss is drawn equal to the height of this boss on the ridge rib x x. The longitudinal section is drawn by means of ordinates from the curves determined on the plan.

The Life of a Bridge. IN a letter to the "Times" in the hope that, "even at the eleventh hour, the erection of a hideous steel lattice girder at Sonning may be prevented," Mr. G. D. Leslie quotes the following remarks by his brother, Sir Bradford Leslie, K.C.I.E., who has been engaged principally on bridge-building for more than forty years (which remarks in the present instance refer only to bridges of moderate span, such as those on the Upper Thames):—"As to bridges, of course, masonry or brick-arched bridges are the best and most economical, because they are practically imperishable. Timber comes next; timber bridges properly designed are as strong as steel. If timber is burnettized with bichloride of zinc under pressure it becomes non-inflammable. Brunel's timber viaducts on the Cornish Railway carried the traffic for forty years, and many of them are still in existence. Timber bridges are half the price



END ELEVATION.

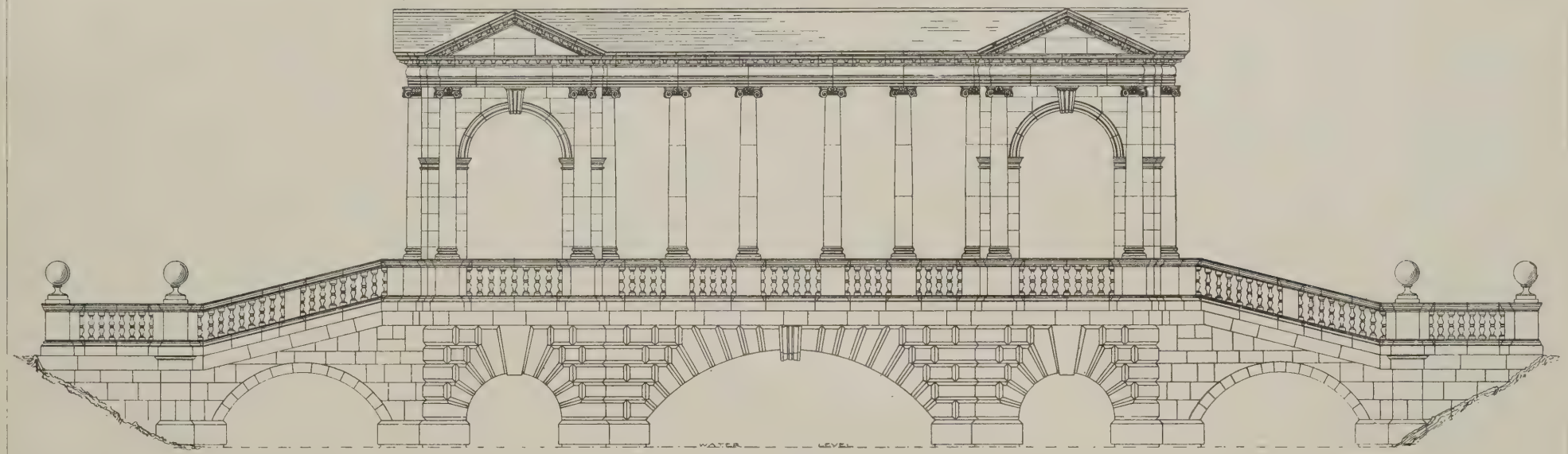


TRANSVERSE SECTION ON LINE A—B (*see* CENTRE PLATE).

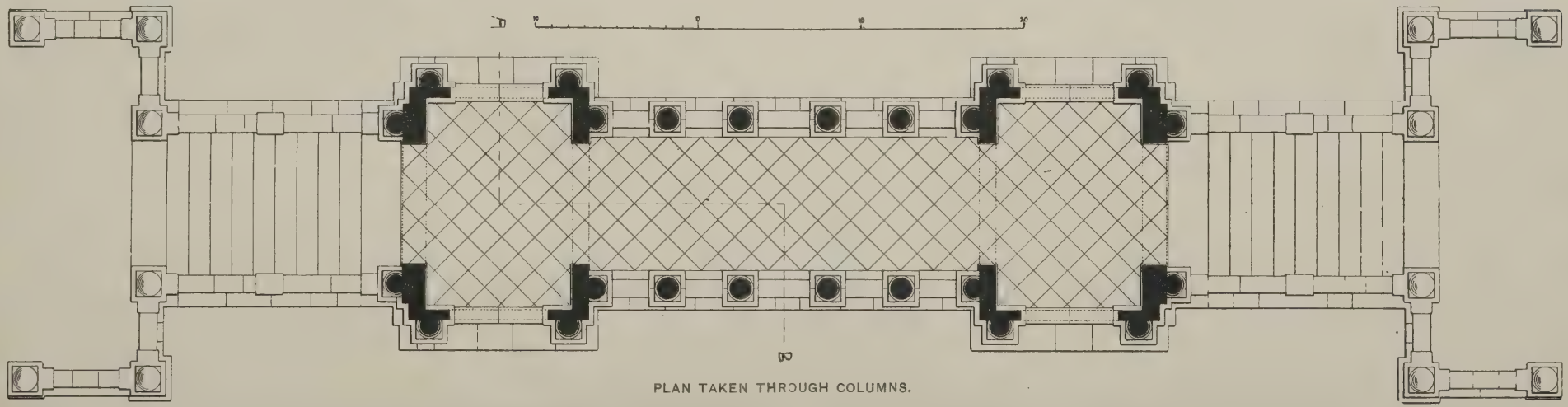
THE PALLADIAN BRIDGE, PRIOR PARK, BATH. MEASURED AND DRAWN BY G. E. PETO.

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Supplement to
THE BUILDERS' JOURNAL AND ARCHITECTURAL RECORD,
Wednesday, October 1st, 1902.

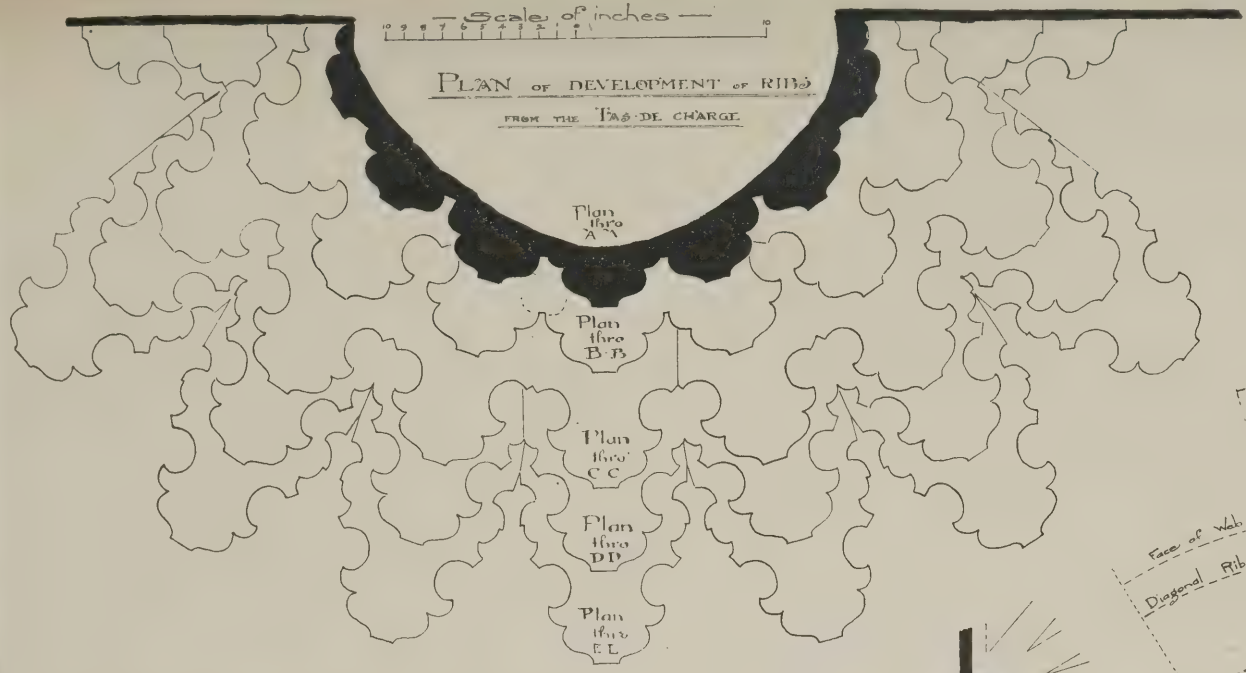


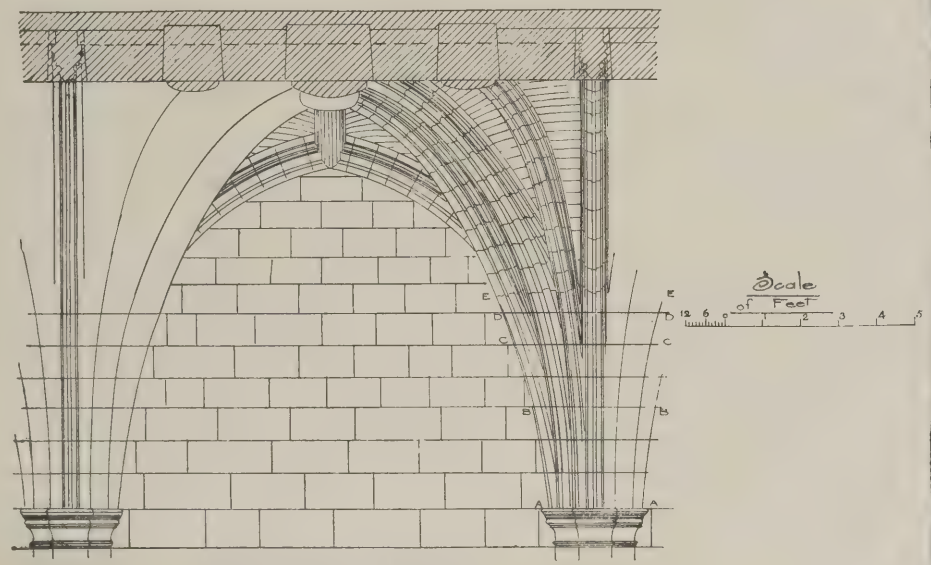
SIDE ELEVATION.

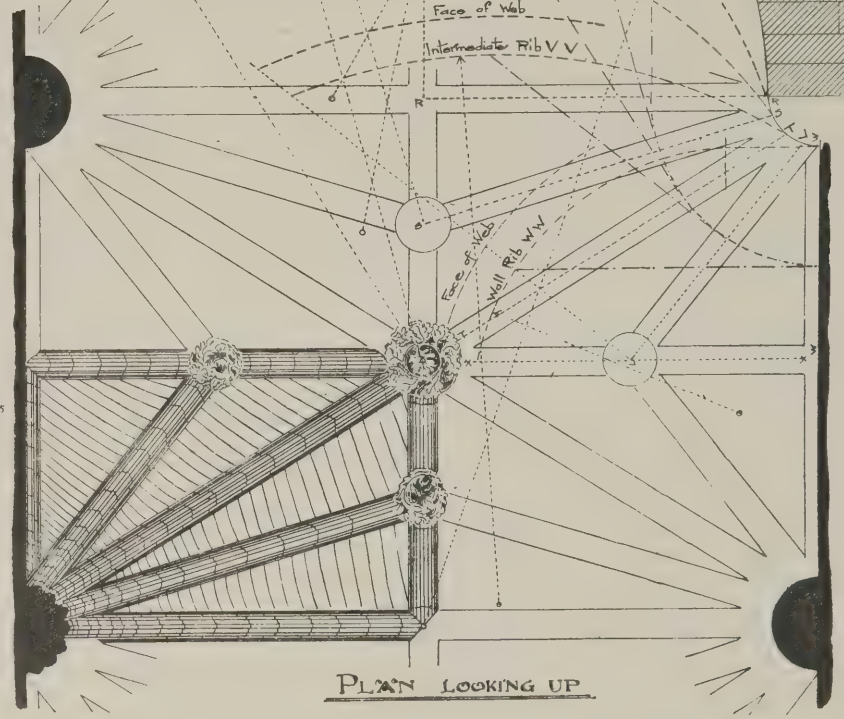


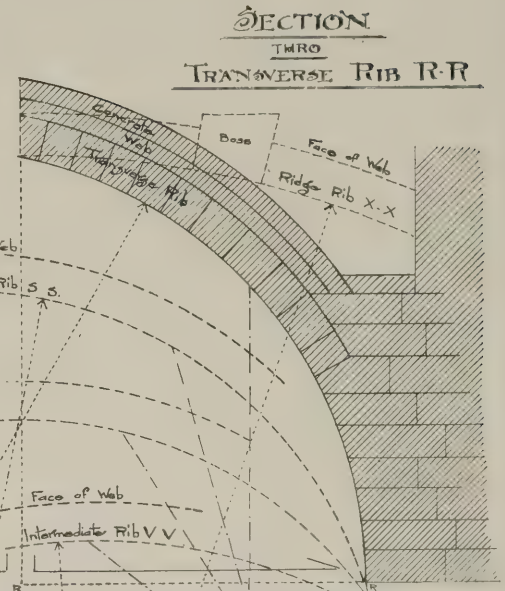
PLAN TAKEN THROUGH COLUMNS.

THE PALLADIAN BRIDGE, PRIOR PARK, BATH. MEASURED AND DRAWN BY G. E. PETO.









A GROINED VAULT. DRAWN BY JOHN ORMROD.

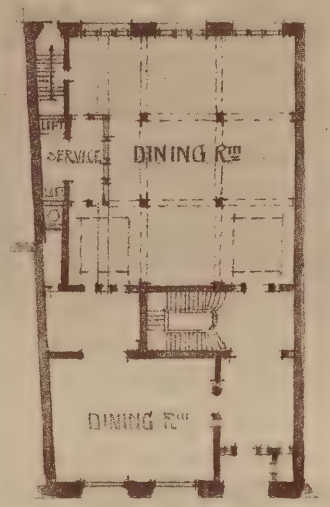
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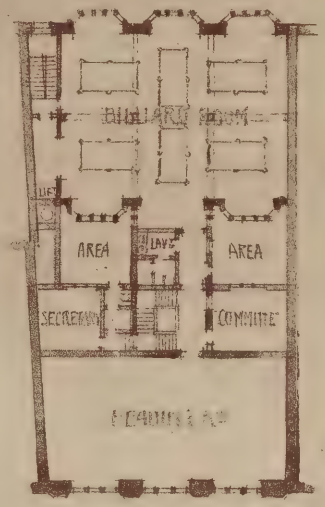
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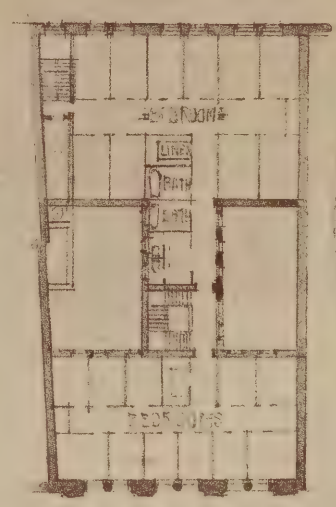




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S.B. Russell. Archt
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of steel; if the saving be invested at compound interest the accumulated fund would pay for the renewal of the timber from time to time as required, and still show a large economy as compared with steel. I might almost add that timber is safer than steel; a steel pillar or strut is liable to collapse by a blow, especially when under strain, and let down an entire span; timber will give or yield and recover its form. Steel is liable to corrosion in ungetatable places, and the damage may go on until the bridge collapses. This was the case with the Hastings Suspension Bridge at Calcutta."

International Art Exhibition at Venice. The municipality of Venice has opened a competition among Italian and foreign artists for the best design, modelled, for a large gold medal to be awarded to the most important works shown at the International Art Exhibition of 1903. The medal must bear on the obverse an allegorical figure of Venice and her artistic glories, surrounded by the inscription "La Esposizione Internazionale d'Arte della Città di Venezia, 1903," and on the reverse side the words "Gran Premio della Città di Venezia," leaving a blank for the name of the successful competitor, the whole to be surrounded by an ornamental border. Every competitor must send in the models of the obverse and reverse sides of the medal executed in either wax or plaster; the models must have a diameter of exactly 120mm.; and the competitors must send, together with the models, the respective photographic reproductions measuring 40mm. in diameter, which will be the dimensions of the medal. A prize of 3,000 lire will be awarded to the author of the model judged the most deserving of reproduction, and judgment will be given by a commission composed of the mayor of Venice, president of the Exhibition, the general secretary and three artists. The models for competition must reach the office of the secretary of the exhibition (Municipio di Venezia), post-paid, not later than January 31st, 1903, and must be signed with a motto, which motto must also be written on a sealed envelope containing the full name and address of the competitor.

South Kensington Museum. The new buildings of the Victoria and Albert Museum, South Kensington, are progressing rapidly. The walls of the basement are now almost finished, and the eastern side of the quadrangle appears to be complete but for the glazing of the windows. This work has permitted the removal of the obstructions in the route to the refreshment-rooms; and has also enabled the museum authorities to open two small additional rooms to the public in the South Court. These have been filled with English carved woodwork and furniture, in continuation of the series begun by the acquisition of the room from Sizergh Castle. Among the exhibits one does not remember to have seen before are some fine panelling from an old house in Exeter, ascribed to the year 1600, and a splendid specimen of a carved roof-beam, with a quaint inscription running along the whole of its three visible sides, dated 1638.

Brixton Church Tower. The upper portion of the venerable tower of Brixton Church, erected about 1438, has for some years been in a somewhat dangerous state. From the battlements and the beacon tower the entire mortar had been worn away; the louvres of the bell-chamber, which were formed of slate rags, were decayed and very unsafe, and the stones of the tower generally required pointing. Recently, under the superintendence of Mr. Charles King, architect, new louvres of cut Delabole slate have been placed in position, the whole of the battlements have been rebuilt, and a great portion of the walls have been pointed in cement. It is intended, as soon as further funds are forthcoming, to continue the latter renovation to the base. But sufficient has already been done to, at all events, safeguard the ancient tower from immediate injury.

Keystones.

New Harbour Works at Bilbao are being constructed.

A new Sanatorium at Weymouth has been erected at a cost of about £20,000.

Lichfield Grammar School was sold last week for £1,035. The governors will build a new and larger school on a site at Borrowcop.

In "The Best of Friends," the new Drury Lane drama, the furnishing of the scenes in Lord Amsbury's rooms in St. Simon's College, Oxford, and the Great Yeomanry banquet, has been carried out by Messrs. Oetzmann & Co., of Hampstead Road, N.W.

A Statue of Lord Tredegar is to be erected in Tredegar. Mr. Walter Merrett, of 20, Mornington Road, Regent's Park, London, who was a pupil of Mr. Joseph Edwards, Merthyr, and subsequently of the late Sir Edgar Boehm, R.A., is the sculptor commissioned. The statue will be in Sicilian marble.

Cracks in the Doges' Palace, Venice.—On the removal of the bookcases from the hall called the Bessarione, in the palace of the Doges, several longitudinal and transverse cracks were discovered in the inner wall and in the pavement. The condition of the floor is dangerous owing to the volumes of St. Mark's Library weighing heavily upon it. Notwithstanding the official declarations, not a single book has yet been removed from the Doges' Palace.

New Municipal Buildings and Free Library at Dingwall are being erected, Mr. Carnegie having offered £2,000 to build the free library. The chief feature in the existing Municipal Buildings—the quaint old tower—will be preserved, the rest of the building will be taken down, and the new free library block will be erected in connection with the new Municipal Buildings. The front of the latter will face High Street, while the front of the library buildings and the entrance will be on Church Street. The architect of the buildings is Mr. W. C. Joass, Dingwall.

A Discovery of Syrian Rock Sculptures.—Mrs. Ghosn-el-Howie, formerly of Scarborough, Yorkshire, writes from Shweir, Mount Lebanon, announcing her discovery on the eastern slope of Mount Lebanon of two rock sculptures. "The one is a few miles up the mountains, and the other is in a gorge or channel of a winter torrent bordering on the plain of Coele Syria. On the first are seen the figures of a 'bull,' 'cow,' and at least one lion—this combination 'suggests a Hittite origin'; the other is the figure of a female armed with a spear and a sword."

Greencoat Technical Classes.—The technical and art classes held at the Greencoat School, Camberwell Green, S.E., resumed work for the twenty-third session on Monday last. These classes, in affiliation with the Technical Board of the L.C.C., the City and Guilds Institute and the Board of Education, have for many years done good work among the artizan population of Camberwell. Of late their usefulness has been considerably increased by the help of the Technical Education Board's grants in aid of equipment. By this means a very valuable collection of models and apparatus has been provided for the use of students employed in the building trade.

A new Grammar School for Girls at Ashby-de-la-Zouch has been erected at a cost of £10,000. Accommodation is provided for 200 pupils, including thirty-eight boarders.

The Yarmouth Fish Wharf has been extended by the Corporation. Six new offices and ten bays have been added. The new offices are built of glazed bricks. The work cost £1,000.

The New Technical School at Southend has accommodation for 375 scholars and has been built by the town council at a cost of £20,000. The architect was Mr. Henry T. Hare.

A new Courthouse at Sparkhill, Birmingham, has been erected behind the police-station. The work has been carried out by Mr. Frank Davis, of Moseley, under the direction of Mr. A. B. Rowe (acting county surveyor) and Mr. E. T. Fletcher (clerk of works).

New Wesleyan Day and Sunday Schools at Great Lever have been erected at a cost of about £7,000. Accommodation is provided for 850 day-school children and for 1,000 in Sunday school classes. Messrs. W. Townson & Sons were the builders, and Messrs. Potts, Son & Hennings the architects.

A new Congregational Church at Easton, Bristol, has been erected in Greenbank Road. Messrs. George Humphreys & Sons were the builders, and Mr. Frank Wills was the architect. The total cost has been about £5,000. The building is of brick, and, including galleries, will provide seating accommodation for about 800 persons.

A new Grammar School at Beverley has been erected on the west side of Queensgate on a site which stretches westward towards Westwood. The exterior is simply treated in red bricks with stone dressings, and the roofs are covered with red tiles. Mr. John Bilson, F.S.A., of Hull, was the architect, and Mr. J. Constable, of Beverley, the builder.

A Facsimile of the Old Celtic Cross at Treton, in Cumberland, has been erected at Whitechurch Canonicorum, Charmouth, Dorset, as a memorial to the late vicar. It consists of a monolith of Ham Hill stone, 10ft. high, taking the form of a cross at the top. The actual inscriptions upon the shaft are raised upon inlaid slabs of yellow magnesium limestone, identical in colour with the Ham Hill. It is the handiwork of Messrs. Harry Hems & Sons, of Exeter.

A Stone Font, with ornamental oak cover, has been placed in the parish church of St. Thomas as a memorial to the late Rev. W. J. Birkbeck, prebendary of Wells, who was for four years vicar. The font and the steps upon which it stands are all of West-country Beer stone, whilst the spiral cover is of old English oak. They were designed by Mr. Doran Webb, architect, of Salisbury, and carried out by Messrs. Harry Hems & Sons, of Exeter. The hanging apparatus by which the canopy is raised was supplied by Messrs. Singer, of Frome.

A House Stolen.—M. Ridoux, a piano manufacturer of Paris, some years ago built a country house near St. Quinton, in the department of Somme. The house was built of wood on a stonework foundation, and was most sumptuously furnished. For several years M. Ridoux has been in the habit of going there with his family to spend a month during the summer. At the beginning of September, accompanied by his wife and daughters, he arrived at St. Quinton, but found, to his utter astonishment, that nothing was left of the house except the foundations. It appears that during the winter a number of workmen, who said they had been sent from Paris by M. Ridoux, had taken away all the furniture, and afterwards pulled down the house. This they bodily carted away, and sold as old building material.

A new Abattoir at Dublin has been erected in North Circular Road.

A Banner designed by Mr. G. F. Bodley, R.A., and worked by twenty-five ladies, will be exhibited at the forthcoming Church Congress at Northampton.

Change of Address.—Mr. Beresford Pite, F.R.I.B.A., has removed from 48, Harley Street, W., to 2, York Gate, Baker Street, N.W.

A new Institute for Seamen at Salford has been erected in Trafford Road from plans by Mr. J. Medland Taylor. Messrs. W. Southern & Sons were the builders. The cost of the site and the building has been about £6,000.

The Sheffield Society of Artists will hold its annual exhibition of modern works of art in the Cutlers' Hall, Sheffield, from October 14th to November 11th. Sending-in days are October 10th and 11th.

The Roofless Ruins of the Chapel of St. Nicholas, in Carisbrooke Castle, are proposed to be restored as a memorial of King Charles I. The plans have been approved by the Government Department which has the care of historic buildings.

The Following Conversation was overheard at a club:—Layman to rising painter: "I suppose all you have to do is to study at an art school, exhibit at the Academy, and then you are made?" "No; then you go to Paris to be discovered. We don't make anything in England—not even artists!"

At St. Mark's, Hamilton Terrace, St. John's Wood, a memorial window has just been erected to the memory of the late Mr. John Bagnold Burgess, R.A. The appearance of the window suffers from the fact that the gallery runs across it and cuts it in two, but the general colour is rich and harmonious.

The Housing of the Working Classes Committee of the L.C.C. recently considered the report of the architect presenting working drawings, specifications, &c. regarding the blocks of dwellings to be erected in the Clerkenwell Road and Leather Lane frontages of the Reid's Brewery Estate.

St. Stephen, Walbrook.—Messrs. Green & Son, of 28 and 29, St. Swithin's Lane, who have already surveyed and made detailed plans of several parishes in the City, have now been instructed, in accordance with the resolution of the vestry, to prepare a similar plan of the parish of St. Stephen, Walbrook.

An Accident.—A quantity of stone-breaking machinery was recently being moved at Messrs. Goodwin & Barsby's iron foundry at Leicester when the beam of a crane smashed and the whole weight of machinery fell. Five men were injured, having their legs and arms fractured, one man dying a few hours later.

A new Wesleyan Church at Failsworth has been erected from designs by Mr. John Wynne, F.R.I.B.A., of Manchester. The builders were Messrs. A. R. Bullivant & Sons, of Manchester. It is of red bricks, with stone facings in Gothic style, and accommodation is provided for 500 persons. The cost was about £4,000.

A new Font and Two Stained-Glass Windows have recently been added to St. Luke's church, Camberwell. The font was made in Italy from designs by Mr. H. P. Horne, by two brothers, Attilio and Giustino Giustini, of Maiano, a village not far from the famous quarries of Settignano, near Florence. The marbles used are yellow Sienese and red "Cippo," harmonising well with each other and with the black and white marbles of the steps and floor. The bowl of the font is a solid block of red marble, with inlaid yellow marble panels on its eight sides and small columns of the same material at the angles. The two windows form the first section of a scheme for the aisle windows intended to illustrate the Te Deum.

A new Congregational Church at Cricklewood has been erected in Chichele Road at a cost of about £5,000. Accommodation is provided for about 850 worshippers. Messrs. Spalding & Spalding were the architects.

The Monument to Musset now being executed by M. Antonin Mercié is the subject of animated discussion. It is believed that finally the monument will be placed in front of the Théâtre Français, Paris, where the author's work was so often in evidence.

The Sanctuary of the Parish Church of Whippingham is being enlarged and a reredos erected as a memorial to Queen Victoria. A portion of the chancel roof over the sanctuary will undergo alteration, and the chancel floor is to be partly laid with marble.

The Isle of Wight Memorial to Queen Victoria takes the form of a graceful column, supported by figures emblematical of the regal virtues, guarded by lions couchant. It is being erected in the market square at Newport. The figures and lions will be executed in bronze.

A new Primitive Methodist Chapel at Leeds is being erected in Harehills Avenue. There will be a school building attached. The buildings are from the design of Mr. W. H. Dinsley, of Chorley, and are estimated to cost £6,500. The chapel will seat 500 worshippers and the schools will accommodate 300 children.

The new Westminster Cathedral.—Cardinal Vaughan has decided upon the immediate decoration of the Blessed Sacrament Chapel in the new Westminster Cathedral. Its construction has cost about £5,000, and its decoration with marble and mosaics is estimated to cost at least £12,000. Towards these sums his brother, the Rev. Kenelm Vaughan, has collected in Spain and South America over £13,000.

M. Raphael Brown, the well-known inspector of Beaux-Arts in Paris, concludes his term of office at the end of the year. In consideration of his excellent services in the cause of art he has been invited to continue his duties indefinitely, and he will shortly be engaged with M. Bouvard in the reorganisation of the municipal service of fine arts in Paris. It is expected that a great many changes will take place in the personnel of the museums.

A Statue to Shakespeare is to be erected at Copenhagen in the open space between the town harbour and the railway station. It will face the so-called "Hamlet Terrace" of Kronborg Castle, on which Shakespeare laid the scene between Hamlet and his murdered father, and thereby indissolubly coupled the name of Elsinore with his own. The work of executing the bust has been entrusted to M. Hasselrus, a Danish sculptor residing in Rome.

The Church of St. George, Botolph Lane, has been closed on account of its unsafe condition for several years. It has, however, remained standing owing to the dilatory procedure of the Ecclesiastical Commissioners, and the inability of the various authorities concerned to arrive at an amicable settlement of the various questions involved. Now the scheme of union with the Church of St. Mary-at-Hill has been finally approved and signed, and no further obstacle stands in the way. As a preliminary towards the demolition of the church, the sanitary authorities of the City are taking action with a view to securing the removal and reinterment of any human remains that may be buried in the vaults or the churchyard. The actual work of demolition will, it is expected, be proceeded with in the course of a very short while. The monuments and other features of interest which the church contains will be removed to and re-erected in the Church of St. Mary-at-Hill.

The new Roman Catholic Cathedral at Norwich, which the Duke of Norfolk is building, is progressing apace. The nave has been finished for some time, and is used for services, while the walls of the east end and transepts are now raised as far as the crowns of the arches of the first storey. The cathedral has a magnificent site, and on its tower it is proposed to place a beacon light which will be visible at sea. The interior is a fine example of work in the Early English style, and is treated with a reticence and even severity which gives it, for a modern building, an unusually impressive effect. The architect responsible for the plans was the late Sir Gilbert Scott.

New Patents.

These patents are open to opposition until November 3rd.

1901.—Pile Drivers.—16,738. T. Möbus, 12, Goethestrasse, Carlottenburg, Germany. This invention relates specially to pile-driving under water. The monkey slides up and down in a tube which encloses the upper end of the pile. The driving is thus not retarded by the monkey having to pass through the water, and, also, extra long piles are not required.

Trench-cutting Machines.—18,061. E. Schofield, 48, Winfield Mount, Blackman Lane, Leeds. The machine consists of a series of cutters which work down the side of the trench, in combination with a chain bucket elevator for raising the material to the surface, where it is discharged on to a chute. The machine is driven by any convenient power and takes up a space of about 5ft. from front to back in the trench: the sides of the latter can be immediately propped up, and the depth of the excavation can be regulated whilst the machine is working.

Firebrick Arches for Boiler Settings.—19,052. H. W. Foxworthy and R. W. Moore, 61, Strathblaine Road, Clapham Junction, London, S.W. The bricks are formed with rebates and joggles on their radial faces so as to interlock with adjacent blocks, and thus compensate for the expansion and contraction caused by the extreme variations of temperature to which they are necessarily subjected.

Float-Actuated Taps.—21,147. W. Bradley, 18, Collegiate Crescent, Broomhall Park, Sheffield. The valve is opened full by the float lever and kept so by the water pressure; similarly it is closed suddenly and held closed by the water pressure.

Keys for Drawing Instruments.—21,340. E. Nickerson, 13A, South Place, Kennington Park, London, S.E. The key consists of a small tube or a flat piece or metal having a projecting point at one end, while another point is formed on a spring-controlled slide. The two points can thus be adjusted to fit the nut on the compass joint.

The following specifications were published on Thursday last, and are open to opposition until November 10th next. A summary of the more important of them will be given next week.

1901.—11,366, Waite, softening, filtering and purifying water. 17,805, Harris, purification of air. 17,986, Cowling, hinges. 18,154, Mobberley, floors for drying bricks, &c. 19,953, MacAuslan, hygienic dwellings. 20,257, Jones, door-fastenings for cold-storage rooms. 21,245, Selke, process of photo-sculpture.

1902.—12,261, Gumilevsky, locks and keys. 13,151, McClenahan, chipping tools. 14,998, Szöcs, vices. 16,462, Meintjes, pumps. 16,589, Williams, piles, girders, &c.

SANITARY HOUSE DECORATION. *

By LOUIS HANKS.

IN commencing the sanitary decoration of a house begin at the top, in the loft if there is one, and work downwards, cleaning and removing dirt from all recesses and hidden corners as you go: provide a skylight that can be opened, and brush down and whiten every part of the walls, floor and under-surface of roof either with limewash or carbolic distemper.

Do not leave the open joisting and rough plaster to accumulate more dirt, but put a thin flooring all over the loft and thus gain useful storage room. Where air and sunlight can enter, microbes will be conspicuous by their absence. Sunlight is a great germ-killer, wherefore all dwelling-rooms should have ample windows.

Old Wallpaper.

Descending to the sleeping apartments, and having perhaps admired the beauties of the smart new decorations, let us peel off that little piece of loose paper on the wall. To our horror we find that the "decorator" has forgotten to strip the walls before re-papering them, and here are five or six layers of dirty old paper and decayed paste, in all probability holding vermin or even the germs of disease behind the newest paper.

Let it here be uncompromisingly stated that every scrap of old paper on walls or ceilings and all old distemper should be soaked, scraped and washed off to the bare plaster, except perhaps in the case of a tightly-hung varnished or painted paper, which already presents a solid impervious surface. Insist, as one of the first principles of sanitary decoration, on the stripping of walls and ceilings, and disregard all pleas or fears as to fetching down the loose plaster. If the plastering is so weak that it is held up by the paper or old whitewash, that is surely a pretty good indication that it needs repair.

The desirability of enforcing the stripping of old wallpaper and distemper by the passing of a by-law to that effect may be commended to the attention of sanitary authorities.

Disinfectants.

Always use some disinfectant in the water employed in stripping and washing down the interior of a house, both as a sweetener of the rooms and as a protection for the workmen in case there may have been infectious illness on the premises. Safe and effective liquid disinfectants are so cheap nowadays that there is no reason for omitting this simple precaution. A solution of soda in warm water facilitates the removal of old paper and the effective cleansing of the surface. Wherever there is a sign of dampness, trace and remedy it at its source, to protect health and to prevent damage to the decorations. In slight cases it may suffice to line the damp wall-surface with lead foil or pitch-paper or to paint it before re-papering, but all serious dampness should be thoroughly removed. Having stopped all cracks or imperfections in the plaster with Parian or Keene's cement, and rubbed down the plaster to an even surface, the walls and ceilings are ready for decorative treatment, which must, of course, depend on individual taste and the finances at command.

In "clairecolling" or sizing walls or ceilings preparatory to papering, and also in the process of distempering, the smell of size is often very offensive, and this is not to be wondered at when its organic nature is considered. This odour can be almost entirely neutralised by the addition of a gill of turpentine to a pailful of melted size or distemper. This is actually an improvement to the body and binding properties of the material, as well as a deodorant.

In hanging papers, embossed pulp or canvas materials on painted or varnished surfaces, a clairecolle of size and soda should be used—half a pound of soda to a gallon of melted size—to give a "bite" to the material to be hung and to prevent blistering. The clairecolle for unpainted surfaces should be melted size with a little whiting and turps as aforesaid—no water.

Sanitary Distempers.

Many of the sanitary, washable distempers or water paints—so justly approved and largely employed nowadays—contain a percentage of turpentine, boiled oil or other vehicles, as well as an admixture of dry white lead, zinc white or soluble glass, together with some disinfectant. Such truly sanitary pigments cannot be too highly commended, as they are cheap, produce artistic and durable effects, and possess better covering properties than oil paint. One hundredweight of such a distemper will cover 840 sq. yds., while the same quantity of oil paint will only do an average of 500 sq. yds.

Paintwork.

Little need be said as to the composition or application of paint to walls or woodwork beyond urging the use of zinc white (oxide of zinc) or Charlton white as being non-poisonous and therefore more sanitary than white lead (carbonate of lead), the poisonous nature of which is well known, although it may be safely used with proper precautions. If white-lead paint is used it should be genuine old, ground white lead, mixed with pure American turps and Baltic linseed oil, with the addition of litharge driers or terebene, according to the weather in which it is used, and such paint gives off little or no odour or volatile particles. Do not use cheap white lead, as it is often adulterated with barytes (sulphate of barium), and avoid "young" or new lead, as it is deficient in covering properties and damages colour in its oxidation. White paint is the most healthful of all paints, because, apart from its artistic effect, it shows dirt better than coloured paint and thus indicates the necessity for cleaning. A glossy surface is more sanitary than a dull or "flatted" surface, as it affords less hold for dirt. In selecting papers or decorations for the walls of bedrooms, and indeed for all living rooms, avoid large staring patterns and aggressive contrasts of primary colour in masses. The less pattern there is the better; a simple background of agreeable tone is more restful and suited to a bedroom than any assertive decorative treatment.

A room simply decorated with a pale cream (not blue-white) ceiling and cornice, cream enamelled woodwork, and papered, painted or distempered walls in a tint of soft non-arsenical green or blue for a warm, sunny aspect, or in warmer tones of terra-cotta, pink or yellow for cold dark rooms, will be quieter and more soothing to the senses, and thus more conducive to repose, than more gaudy treatments.

Non-Arsenical Paperhangings.

In purchasing paperhangings take care to procure them from a firm of repute who can furnish an authentic guarantee that no arsenical colours or other poisonous ingredients are employed in the process of manufacture.

The fermentation of the paste used in hanging papers and relief materials is a danger which can be avoided by the addition of a lump of alum, the size of a filbert, to a pail of paste. This helps to thicken the paste, giving better and more adhesive body, as well as having a hardening and non-fermentive action. The addition of a small quantity of oil of cloves also assists in checking fermentation.

Lastly we have to consider the floor, which should be sized and varnished all over, merely having a loose rug, thus providing a thoroughly sanitary surface which can be kept clean and germ-free without the use of the scrubbing brush. All open joints should be stopped to prevent dust dropping through into the space beneath. Permanganate of potash is an excellent dark stain for clean boards, and has the additional merit of its disinfecting qualities.

The same general principles apply also to the decorative treatment of the reception-rooms, staircase, &c., elaborated to whatever extent artistic inclinations or means permit.

Paperhangings, where used, should be preferably those with a hard smooth surface, such as the hot-pressed silk fibres or oil printed papers, not flocks nor mica papers, which catch the dusts and whose particles become detached in course of time, thus failing to comply with sanitary requirements.

Painted and panelled walls and ceilings, hand-painted decorations of flat ornament in monochrome, colour or stencilling, with the embellishment of gilding in mouldings, and other ornamental details; plaster or compo-mounted enrichments, hardwood panelled wainscoting, parquet floors, and every kind of decorative treatment that does not afford absorbent surfaces or dust-collecting ridges, shelves or scrolls, may be freely employed in an entirely sanitary scheme of decoration.

Bathrooms, &c.

In bathrooms and closets do not have wooden enclosures to baths, sinks or w.c.'s, as such places frequently serve to harbour filth, and thus become a nuisance. Let every part of the sanitary fittings be open and above board, so that any leakage can be detected and every part accessible for daily cleansing. Corners behind w.c.'s, and corners of rooms generally, would be more hygienic if slightly rounded to prevent the collection of dirt. The walls of bathrooms, lavatories and the domestic offices should be covered with varnished paper, paint or, preferably, with ceramic or enamelled metal tiling, so as to be impervious and washable. The latter forms of wall-covering are strongly to be advocated for larder, pantries and store-cupboards. The floors of bathrooms, w.c.'s and lavatories, also larger, should be cemented or asphalted.

Mosaic of marble or glass is a material more often employed for the flooring of halls, steps and lavatories in this country than for mural decorations, due chiefly to questions of cost, but it is a matter for regret that this sanitary, artistic and durable material is not more largely used for decorative purposes.

In conclusion, a word may be given to the necessity for ample inlet and outlet ventilation for every room, to promote the health of the occupants and to preserve the decorative adornments. The least injurious form of artificial lighting in all respects is, of course, the incandescent electric lamp, and where gas is used every burner should have outlet ventilation to carry off the fumes. Carefully search for cupboards under stairs, also cellar or vaults. See that all such places have cement floors. Limewash them twice a year, and do not let lumber and dirt accumulate. Abolish brick or wood dustbins, and have iron portable bins. Bear in mind that soap and water, fresh air, sunlight and cleanliness in general are as much to do with health as elaborate drainage and the complications of modern plumbing, and there is the advantage, moreover, that such simple things are within the reach of all—the poor as well as the rich.

* Summary of a paper read before the Congress of the Sanitary Institute held at Manchester from September 9th to 13th, 1902.

A Reredos at the Royal Artillery College, Sandhurst, is to be erected as a memorial to officers who fell in the South African War. Mr. Bodley is the architect.



YORKSHIRE HOME FOR INCURABLES HARROGATE. T. E. MARSHALL ARCHITECT.

A HOME FOR INCURABLES.

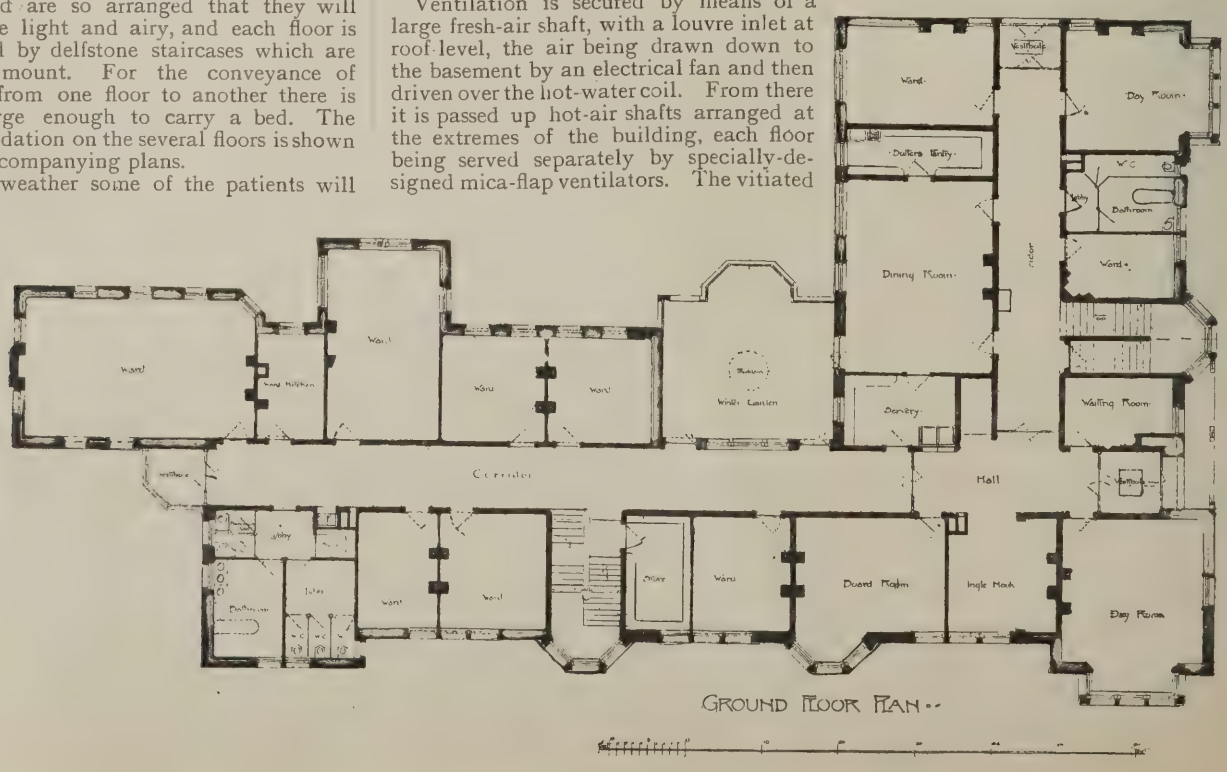
"FOR sufferers reduced in circumstances through long-continued affliction"—this is the motto of the Yorkshire Home for Incurables illustrated on this page. It has been built from plans by Mr. T. E. Marshall, architect, of Harrogate. The building is constructed of Pateley stone and has a frontage of 157½ft. to Cornwall Road. To the side road which leads to Harlow Moor there is a frontage of 85ft. The corridors are 8ft. wide, and are so arranged that they will always be light and airy, and each floor is connected by delfstone staircases which are easy to mount. For the conveyance of patients from one floor to another there is a lift large enough to carry a bed. The accommodation on the several floors is shown by the accompanying plans.

In fine weather some of the patients will want to get out into the open air and enjoy the sunshine and health-laden breezes. Their requirements in this respect have been provided by an 8ft. 6in. terrace, which extends round one-third of the building and slopes gradually down to the garden paths. At the first-floor level there are asphalt airing-flats for the patients, opening into corridors by wide doors.

The floors to each of the corridors, bath-rooms and the other principal rooms are constructed with iron joists, cement-concrete and wood blocks or terrazzo.

Ventilation is secured by means of a large fresh-air shaft, with a louvre inlet at roof-level, the air being drawn down to the basement by an electrical fan and then driven over the hot-water coil. From there it is passed up hot-air shafts arranged at the extremes of the building, each floor being served separately by specially-designed mica-flap ventilators. The vitiated air is afterwards drawn into the chimney breasts at the ceiling level.

The building provides accommodation for nearly 100 patients. It will be noticed that, for the convenience of the patients, the kitchens and the domestic offices are situated at the top of the building. The home has cost about £15,000, and another £1,500 will be required for furnishing. Towards this sum £10,243 has been already subscribed, but the balance is wanted. It will doubtless be speedily subscribed. This is not a local institution, but a county home; and as showing


Ward
Day Room
Dining Room
Waiting Room
Hall
Corridor
Ward
Ward
Ward

what can be done in a small way it may be mentioned that one collector has gathered during the past nineteen months no fewer than 12,000 pennies.

PAINT AND THE PAINTERS.

THE annual convention of the National Association of Master House-Painters and Decorators of England and Wales was held last week at Newcastle-on-Tyne.

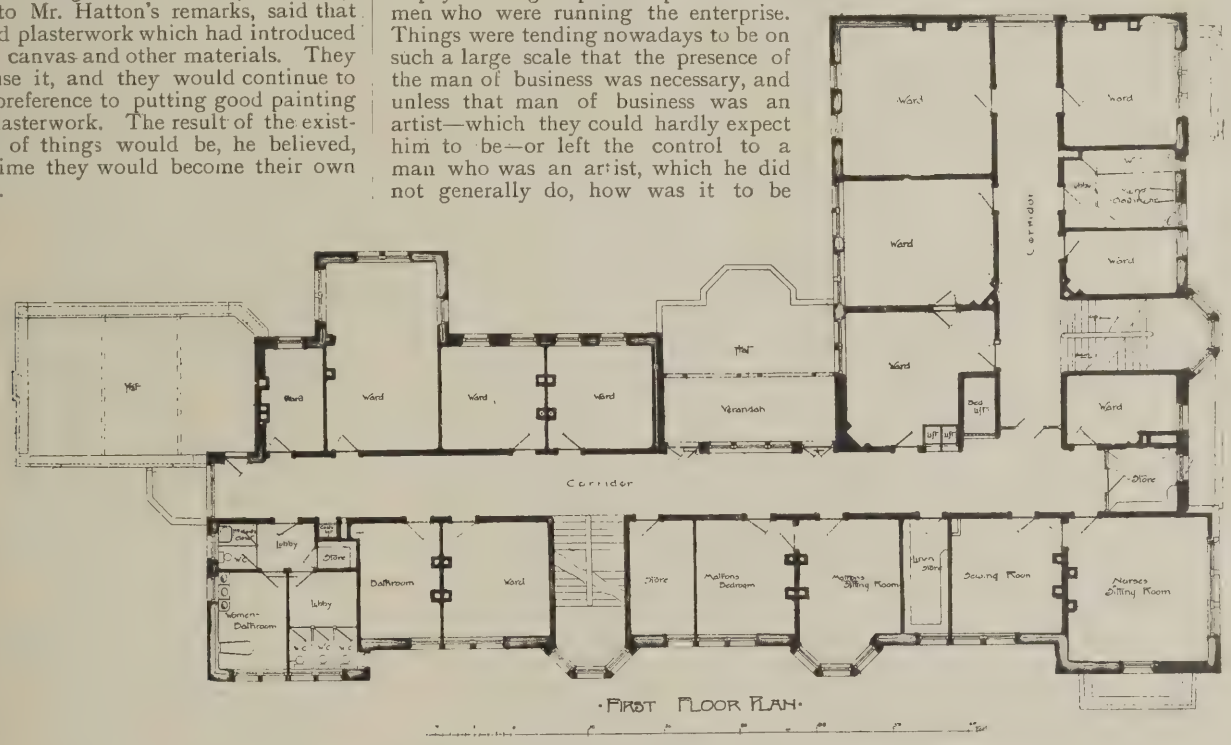
Embossed Papers.

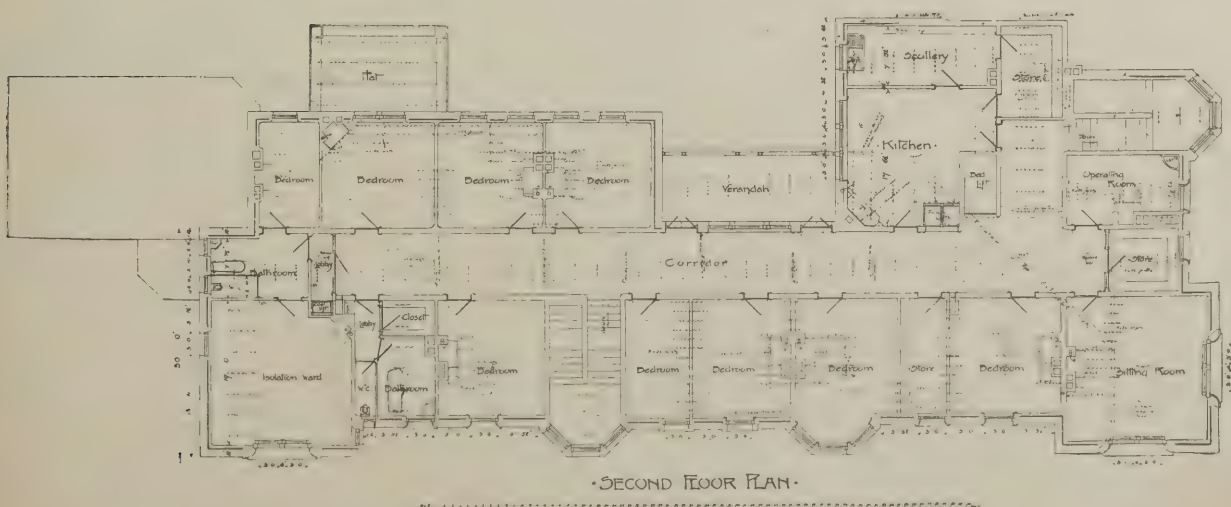
Mr. R. G. Hatton, head art-master at the Durham College of Science, said in the course of a paper that there seemed to be arising an epidemic of embossed papers, and while not saying a word against them he was of opinion that they tended to drive out the need for certain skill on the part of the decorator which he formerly had. It was only natural to think that there would be a tendency for using these appliances which would gradually eliminate the craft of the decorator, and the man who was jealous of his craft would look askance upon the introduction of any mechanical means which would tend to reduce the skill of hand and eye. Mr. George G. Laidler (Newcastle), alluding to Mr. Hatton's remarks, said that it was bad plasterwork which had introduced embossed canvas and other materials. They had to use it, and they would continue to use it in preference to putting good painting on bad plasterwork. The result of the existing state of things would be, he believed, that in time they would become their own plasterers.

Mr. Lewis F. Day and the House Painter.

Mr. Lewis F. Day read a paper on "The Art and Trade of the House Painter." He said there was a time when all art was decorative, but that had changed altogether, for now decoration was only a division of art, and house decoration only a division of that. Art and craftsmanship were inseparable. It was difficult to draw a hard and fast line between them. The moment the consideration of beauty, apart from utility, entered into the calculation of the workman, he touched upon the domain of art. It was all but impossible for a man to carry workmanship to its furthest point without concerning himself about its beauty, and that was art. It was quite possible, nevertheless, for a man to carry on his trade without a regard for art. The modern change was due largely to the fact that whereas house-decoration used to be in the hands of the workman, or under the direction of a man who had been a workman, the tendency was more and more to the trade getting under the control of the enterprising man of business. The mischief was not that the decorator had to make it pay, but that the desire to make it pay so well was so strong that the workman and his best qualities were being swamped by the necessity for making the enterprise he was engaged in pay the largest possible profit to the men who were running the enterprise. Things were tending nowadays to be on such a large scale that the presence of the man of business was necessary, and unless that man of business was an artist—which they could hardly expect him to be—or left the control to a man who was an artist, which he did not generally do, how was it to be expected that the work done under such auspices should be artistic. Art of any kind, he admitted, did not sell best, but it paid. It was the best advertisement; it made people talk, it spread the decorator's fame, and perhaps brought customers for trade work. Was there ever a better advertisement for drain pipes than art pottery?; and what applied to pottery applied to house decoration. The good artist with practical qualifications and no desire to undertake more than he could personally supervise could always make a living, and, if anybody was to be envied, perhaps he was the man. But the point to which he wished to call their attention was that the house decorator need not be a great artist—need not, in fact, have much more than a workmanlike appreciation of good work well done—to raise his trade to something of an art, if he only had his ideal and the courage of it.

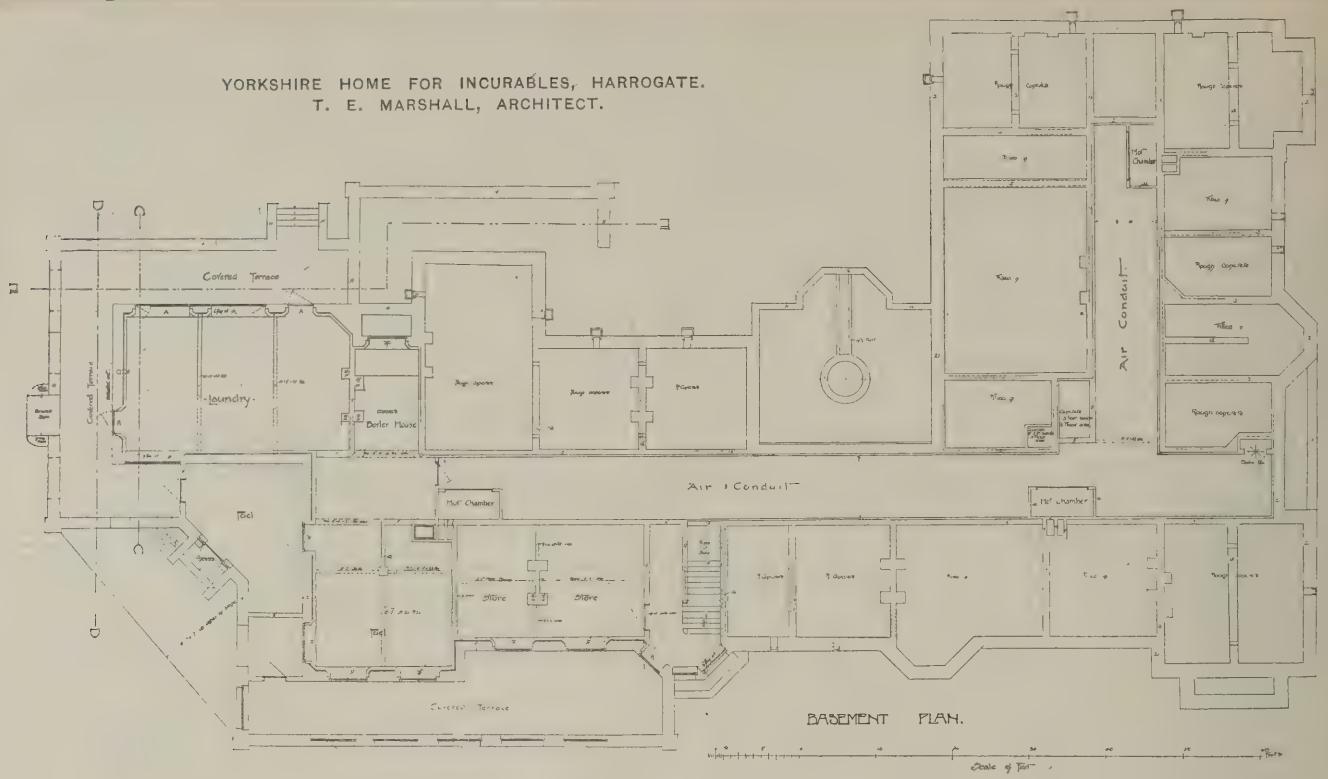
A New London Theatre.—We are informed by Mr. E. G. Saunders, of the Saunders Theatres Ltd., that Mr. W. G. R. Sprague is designing for him a new theatre to be erected on the Strand corner of the new Crescent facing Waterloo Bridge. Mr. Sprague also designed the Coronet and Camden theatres for Mr. Saunders.





YORKSHIRE HOME FOR INCURABLES. T. E. MARSHALL, ARCHITECT.

YORKSHIRE HOME FOR INCURABLES, HARROGATE.
T. E. MARSHALL, ARCHITECT.



Trade and Craft.

A New Material for Urinals.

Mr. William E. Farrer, of 36, Cannon Street, Birmingham, is introducing a new material for urinals, called "Torfit." It is made from prepared peat, the word itself being German for turf. The peat is shredded and cleansed, mingled with a powerful chemical disinfectant, and pressed under hydraulic pressure of 800 tons into slabs, channels, &c. It is then dried for nine months to give it the necessary hardness for handling and fixing. The floor channel and divisions of the urinal are formed in the ordinary way and the backs finished with a moulded coping. After fixing, all that is necessary is to brush over the material with a chemical extract supplied with it: and this solution (which is of an oily nature, but is absorbed without any residue being left) is such that when the urinals are used the urine itself is disinfected immediately it strikes the backs, and is not in the slightest degree absorbed into the material, but passes away along the floor channel in a deodorized condition. The outlet trap contains a small quantity of the liquid extract, and before the urine reaches the drain it is rendered innocuous. In addition, there is no smell, deposit or furring. Even in places where the urinals are very extensively used it is only necessary to brush them over with the extract about once a week. The material has been in use on the Continent for the past six or seven years—though in matters of sanitation it is usual to find English practice far ahead of the French or German—and among other places it is adopted at the North German Lloyd's shipping and engineering yards at Bremen, while, coming to our own country, Mr. Farrer has fixed several ranges in Birmingham which are giving every satisfaction. A good feature of the material is that, by turning slightly white, it shows when it is necessary to brush it over with the disinfectant; and it is claimed that the saving in water alone, based at 7d. per thousand gallons, will cover its cost in less than two years. The cost per stall is about half that of ordinary circular backs, and the maintenance about 2s. 6d. per year per stall.

School Furniture.

Of school furniture the folding or sliding partition is the most useful as it is the most recent development. A large room can be divided up into small rooms for classes, and reconverted into a hall again, by the simple sliding or folding of these partitions. In constructing them, however, there are several points to which special care needs to be given, notably the manner in which the sections are hung or mounted. The Educational Furnishing Co., Ltd., of Stourbridge, make a speciality of ball-bearing partitions each door of which slides and opens separately. A boy can manipulate such a partition, and when folded back against the walls it is very compact. The track on which the shutters run is flush with the floor, thus giving a perfectly level surface when the partition is open, while the tops of the shutters have a strong pin fitting into an iron groove, so that it is impossible for a shutter to fall out. The firm also supplies all kinds of furniture for schools, such as desks, cupboards, bookcases, tables, &c.

A Well-Tried System of Glazing.

Glazing bars have proved almost as attractive to the inventor as window-fasteners, and it might reasonably be thought that every possible form had long since been devised; but of this huge collection there are scores which are nothing more than the untried ideas of trade cranks or mere duplications of sections that have been proved to be defective. There is indeed but one real test of a glazing bar—the test of time. Hope's patent system has been tried in this manner, having been extensively employed for various large public buildings, hospitals, schools, works, warehouses, &c., throughout the country; among which may be mentioned the West Ham Technical Institute, the Birmingham Meat Market, the Park Hospital at Lewisham and the London Hospital in Whitechapel, Trinity College, Cambridge, and the works of the British Thomson-Houston Co. at Rugby, of Vickers, Sons & Maxim at Sheffield, Fry's chocolate works at Bristol, and Doulton's factory at Burslem. A system which has thus been employed needs no bolstering up. We may, however, state the following points of merit claimed for it by Messrs. H. Hope & Sons, Ltd., of 55, Lionel Street, Birmingham (London office: 39, Victoria Street, S.W.):—The glass has a good bearing on the bar, and is not supported on its extreme edges; there is ample allowance for expansion and contraction; the lead capping is so attached that all fastenings are dispensed with and derangement is made impossible, while its form allows it to be turned up and down without an angular bend, and it cannot be cut by the edges of the glass. The oiled asbestos cords, fixed in grooves, provide a plastic but imperishable seating material, which makes a perfectly dust-tight joint and enables long sheets of glass to lie evenly on the metal bars; the lead capping has a solid ridge projecting above the glass, and no injury can be done to it, nor glass broken, by placing planks across the roof; the stops for the glass are made of gunmetal and secured to the bars with strong copper rivets; the weight of the bars and glass is carried entirely by the purlins, and there is no weight upon the fixing screws. Only glass and lead are exposed, and consequently painting is dispensed with.

Dust-Removal by Vacuum.

In our issue for June 4th last we published some particulars of a device for removing dust in upholstery, draperies, carpets, &c., the patent of the Vacuum Cleaner Co., Ltd., of 25, Victoria Street, London, S.W. A booklet has now been sent to us giving, in addition to a full illustrated description of this useful invention, prices at which the company undertake cleaning work. A list is also given of some of the places where the device has been used—as, for example, the Savoy Theatre, where 82½lbs. of dust were removed, the Palace Theatre (228lbs.), the Midland Hotel at St. Pancras (196lbs.), the Kennington Theatre (382lbs.), and part of the corridors, tea-room, &c., in the House of Commons (25lbs.).

Fire at the New War Office Buildings.—Just before midnight on Wednesday one of the crane platforms at the new War Office buildings in Whitehall was found to be on fire, the outbreak being due to the overheating of a boiler. Firemen from Scotland Yard were speedily on the spot, and the flames were extinguished after slight damage had been done to the platform.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDERS MAY BE OBTAINED.
	BUILDING:		
Oct. 2	Carbis Bay—Church	Wesleyans	O. Caldwell, Architect, Alexandra Road, Penzance.
" 2	Wolverhampton—Hospital	District Hospital for Women Management Committee.	A. E. Painter, 43 Lichfield Street, Wolverhampton.
" 2	Chelmsford—Offices	County Council	F. Whitmore, County Architect, Duke Street, Chelmsford.
" 2	Sidmouth, Devon—Hotel	Hotels Co., Ltd.	R. W. Sampson, Architect, Manor Offices, Sidmouth.
" 2	Manchester—Cooling Towers, Workshops, &c.	Electricity Committee	F. E. Hughes, Secretary, Electricity Dept., Town Hall, Manchester.
" 2	Llantwit Major, Wales—Cattle and Sheep Mart		Mr. Miles, Solicitor, Cowbridge
" 2	Woolwich—Clearing Site for Municipal Buildings	Borough Council	A. B. Thomas, 5 Queen Anne's Gate, Westminster.
" 3	Lightcliffe, Yorks—Four Houses		J. F. Walsh & G. Nicholas, Architects, Museum Chambers, Halifax.
" 3	Coombe, Newlyn—Stores	R. R. Bath	H. Maddern, 26 Clarence Street, Penzance.
" 4	Greatford, Stamford—Room at School		Greatford School, Stamford.
" 4	Halifax—Two Villas		G. Buckley & Son, Architects, Tower Chambers, Halifax.
" 4	Hoole, Chester—Walling and Fencing	Urban District Council	A. E. Caldecutt, 17 Newgate Street, Chester.
" 4	Dronfield, Derby—Isolation Hospital	N. Derbyshire Hosp. Committee	G. E. Bolshaw, 189 Lord Street, Southport.
" 4	Mastin Moor, Staveley—Isolation Hospital	N. Derbyshire Hosp. Committee	G. E. Bolshaw, 189 Lord Street, Southport.
" 4	Morton, Derby—Isolation Hospital	N. Derbyshire Hosp. Committee	G. E. Bolshaw, 189 Lord Street, Southport.
" 4	Sennen, Cornwall—Wain House, &c.	J. Humphreys	J. Humphreys, Farmhouse, Treveor, Sennen.
" 4	Weston-super-Mare—Alterations to Shops		S. J. Wilde & Fry, Boulevard Chambers, Weston-super-Mare.
" 4	Weston-super-Mare—Two Cabmen's Shelters	Urban District Council	H. Nettleton, Surveyor, Town Hall, Weston-super-Mare.
" 4	Windsor—Curator's House at Cemetery	Town Council	Borough Surveyor, Windsor.
" 6	Manchester—Cement, Bricks, &c.	Lancs and Yorks Railway Co.	Stores Department, Osborn Street, Manchester.
" 6	Skewen, Wales—Schoolroom		Martyn & Lloyd, Architects, Dynevor Post Office, Neath.
" 6	Lurgan—Repairs to Monument	Urban District Council	Town Surveyor, Town Hall, Lurgan.
" 6	Zennor, Cornwall—Alterations, &c., to Public House		N. C. Whear, jun., Architect, Penzance.
" 6	Pontypool—Church and School		Swash & Bain, Midland Bank Chambers, Newport, Mon.
" 6	Tredegar, Mon—Latrines, &c.	Bedwellty School Board	James & Morgan, Architects, Cardiff.
" 6	Brandon—Post Office		J. Farley, Architect, Old Cross, Hertford.
" 7	Acton, W.—Refuse Destructor	District Council	D. J. Ebbetts, 242 High Street, Acton, W.
" 7	London, S.E.—Cartshed, Bothy, &c.	London County Council	General Section, Architect's Department, 18 Pall Mall East, S.W.
" 7	Starbeck, Yorks—Subway	North-Eastern Railway Co.	W. J. Cudworth, Company's Engineer, York.
" 7	Grimsby—Rebuilding Premises	Hide & Skin Co.	H. C. Scaping, Court Chambers, Grimsby.
" 8	Hatfield, Herts—Offices, &c.	Hertfordshire County Council	County Surveyor, 41 Parliament Street, S.W.
" 8	Eccles, Lancs—Mortuary	Health Committee	T. S. Picton, Borough Surveyor, Town Hall, Eccles.
" 8	Glasgow—Alterations and Additions	Corporation	J. Young, 88 Renfield Street, Glasgow.
" 9	Ardrossan, Scotland—Gasworks	Town Council	A. Gillespie, 65 Bath Street, Glasgow.
" 10	London, E.C.—Baths	Corporation	City Engineer, Guildhall, E.C.
" 10	London, S.W.—Six Maisonettes		F. & W. Stocker, 90 and 91 Queen Street, E.C.
" 11	St. Albans—School	St. Peter Rural School Board	F. W. K. Tarte, Architect, St. Albans.
" 11	Dudley—School	School Board	Barrowcliff & Alcock, Architects, Mill Street, Loughborough.
" 11	Castlebar, Ireland—Residence	District Lunatic Asylum	J. T. Kelly, Clerk, Asylum, Castlebar.
" 11	Sherburn Hill, co. Durham—Alterations, &c., to Chapel, &c.		W. Taylor, Architect, Newcastle.
" 11	Liscard, Wallasey—Sand-drying Kiln, Stables, Stores, &c.	Wallasey Urban District Council	J. H. Crowther, Engineer, Great Float, near Birkenhead.
" 14	Harrow, Middlesex—Court House	County Council	H. T. Wakelam, County Architect, Middlesex Guildhall, Westminster.
" 14	London, S.E.—Weights and Measures Testing Office and Coroner's Court.	London County Council	General Section, Architect's Department, 18 Pall Mall East, S.W.
" 14	Felixstowe—Stables and Cart Sheds	Urban District Council	Surveyor, Town Hall, Felixstowe.
" 16	Llanfairfechan, Wales—Police Station and Cells		County Surveyor, Carnarvon.
" 17	Stroud—Isolation Hospital	Hospital Board	Vale & Kingsford, 21 George Street, Gloucester.
" 19	Ardoyne, Belfast—Fire Brigade Station	Corporation	W. J. Hunter, Quantity Surveyor, Scottish Provident Bldgs., Belfast.
No date	Nottingham—Works and Offices	R. I. Dexter & Sons, Ltd.	F. Ball, 23 King Street, Nottingham.
	ENGINEERING:		
Oct. 2	Kinsale, Ireland—Waterworks	Rural District Council	R. Evans, 53 South Mall, Cork.
" 2	Winchcomb, Glos.—Steam Roller, &c.	Rural District Council	J. H. Stephens, Clerk, Winchcomb.
" 3	Middlesbrough—Two Steam Hopper Barges	Tees Conservancy Commissioners	Engineer to Commissioners, Queen's Terrace, Middlesbrough.
" 4	Swindon—Station Lighting	Corporation	Lacey, Clirehugh & Sillar, 2 Queen Anne's Gate, Westminster.
" 6	Ilford—Electric Lighting Plant	Urban District Council	J. W. Benton, Clerk, Council Offices, Ilford.
" 6	Farnborough—Sewerage and Sewage-Disposal Works	Urban District Council	J. E. Hargreaves, Engineer, Town Hall, Farnborough, Hants.
" 6	Margate—Laying Water Main	Corporation	A. Latham, Engineer, Municipal Buildings, Margate.
" 6	Shepley, Yorks—Tank, &c.	Corporation	G. & G. H. Crowther, 38 New Street, Huddersfield.
" 7	Glasgow—Locomotive Engines	Corporation	W. Foulis, 45 John Street, Glasgow.
" 7	West Ham—Traction Poles	Corporation	J. K. Bock, Borough Electrical Engineer, Abbey Mills, West Ham.
" 7	Lowestoft—Timber Pier		W. Jaffrey, 3 Victoria Street, Westminster, S.W.
" 7	Honeybourne and Toddington—Railway	Great Western Railway Co.	Engineer, Paddington Station, W.
" 7	Newcastle-on-Tyne—Electrification of Line	Directors, N.E.R.	Wilson Worsdell, N.E.R., Gateshead-on-Tyne.
" 7	London, W.—Refuse Destructor	Acton District Council	D. J. Ebbetts, 242 High Street, Acton, W.
" 7	London, N—Light Railway	Middlesex County Council	H. T. Wakelam, County Engineer, Middlesex Guildhall, Westminster, S.W.
" 10	Alexandria, Egypt—Spur Pinion and Fly Wheel		Inspector of Irrigation, 3rd Circle, Alexandria.
" 10	Belfast—Electric Motors	Gas and Electric Committee	V. A. H. McCowen, City Elec. Engineer, East Bridge St., Belfast.
" 10	Wallasey, Cheshire—Hydraulic Installation	Urban District Council	Wood & Fowler, 3 Cook Street, Liverpool.
" 13	Stalybridge—Boilers, Economisers, Pumps, &c.	Tramways and Electricity Board	F. Schofield, Clerk, Town Hall, Stalybridge.
" 13	Devonport—Embankment, Road, Culvert, &c.		Borough Surveyor, Devonport.
" 14	West Ham—Condensing Plant	London County Council	Engineer's Department, County Hall, Spring Gardens, S.W.
" 15	Liscard, Cheshire—Boring	Wallasey U.D.C.	J. H. Crowther, Engineer, Great Float, near Birkenhead.
" 16	Bootle, Cumberland—Waterworks	Rural District Council	R. Pickering, 11 Lowther Street, Whitehaven.
" 20	Bury, Lancs—Waterworks	Joint Water Board	J. Cartwright, Civil Engineer, Peel Chambers, Bury.
" 20	Wigan—Electric Equipment of Tramway	Corporation	J. Slevin, Borough Electrical Engineer, Bradford Place, Wigan
" 20	Wigan—Cars, &c.	Corporation	J. Slevin & W. Bolton, Borough Engineer, Wigan.
" 21	London, S.W., Electric Car Traversers	London County Council	County Hall, Spring Gardens, S.W.
" 21	London—Reconstruction of Bridge over Canal	London County Council	Engineer's Department, County Hall, Spring Gardens, S.W.
" 28	Vielsalm to Lierneux, Belgium—Railway	National Co. of Local Railways	Company's Offices, 14 Rue de la Science, Brussels.
" 30	Shanghai—Electrical Plant	Municipal Commissioners	Preece & Cardew, 8 Queen Anne's Gate, Westminster.
Nov. 14	St. Petersburg—Electric Traction on Tram Lines	Stadt Amt (Town Council)	Stadt Amt, St. Petersburg, Russia.
" 29	Manchester—Reconstruction of Bridge		City Surveyor, Town Hall, Manchester.
" 30	Shanghai—Electric Lighting	British Municipal Councils	Office of the Board of Trade, 50 Parliament Street, S.W.
Dec. 13	Madrid—Canal Reservoir		Office of the Ministry of Agriculture, Commerce and Public Works, Madrid.
	FURNITURE:		
Oct. 4	Omagh, Ireland—Bed Rests, Chairs, &c.	Union Guardians	W. Cathcart, Clerk, Poor Law Offices, Omagh.
	IRON AND STEEL:		
Oct. 2	London, S.W.—Railway Stores	Secretary of State for India	Director-General of Stores, India Office, Whitehall, S.W.
" 2	Manchester—Steelwork for Cooling Towers, &c.	Electricity Committee	F. E. Hughes, Secretary, Electricity Dept., Town Hall, Manchester
" 4	Manchester—Steel Tramway Poles	Tramways Committee	J. M. McElroy, 55 Piccadilly, Manchester.
" 4	Workington—Ironwork of Bridges	Corporation	J. Bintley, 7 Lowther Street, Kendal.
" 6	Manchester—Railway Stores	Lancs & Yorks Rly. Co.	Stores Department, Osborn Street, Manchester.
" 7	Leyton—Wrought-iron Fencing	Urban District Council	W. Dawson, Surveyor, Town Hall, Leyton.
" 9	Salford—Iron Staircase at Workhouse	Union Guardians	Master, Workhouse, Eccles New Road, Salford.
" 9	London, S.W.—Chains and Springs	Southern Mahratta Rly. Co., Ltd.	E. Z. Thornton, 46 Queen Anne's Gate, Westminster, S.W.
" 14	Bury, Lancs—Rails, Bonds, &c.	Tramways Committee	Lacey, Clirehugh & Sillar, 2 Queen Anne's Gate, Westminster.
" 15	Amsterdam—Railway Stores	Minister of Colonies	Nart. Nyhoff, The Hague.
" 15	Callao, Peru—Cast-iron Pipes	Corporation	Graham, Rowe & Co., Mersey Chambers, Liverpool.
" 29	Callao, Peru—Cast-iron Pipes	Corporation	Graham, Row & Co., Liverpool.
	PAINTING AND PLUMBING:		
Oct. 2	Alnwick—Sanitary Improvements	Union Guardians	M. T. Wilson, Architect, Alnwick.
" 4	Purston, Yorks—Repainting Public Buildings	Featherstone U.D.C.	Surveyor, Ropegate, Pontefract.
" 4	Darlington—Painting Workhouse	Guardians	C. H. Leach, Clerk, Union Offices, Darlington.
" 6	Manchester—Railway Stores	Lancs and Yorks Rly. Co.	Stores Department, Osborn Street, Manchester.
" 8	Dublin—Plumbing, Gasfitting, &c.	Commissioners of Public Works, Ireland.	Office of Public Works, Dublin.

COMPLETE LIST OF CONTRACTS OPEN—*continued.*

DATE OF DELIVERY.		WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDERS MAY BE OBTAINED.
		ROADS AND CARTAGE:		
Oct.	2	Croydon—Road Repair	Town Council	Borough Road Surveyor, Town Hall, Croydon.
,,	2	Ipswich—Granite Setts	Corporation	E. Buckham, Borough Surveyor, Town Hall, Ipswich.
,,	2	Stockport—Street Works	Highways & Sewers Committee	J. Atkinson, Borough Surveyor, St. Petersgate, Stockport.
,,	4	Hoole, Chester—Street Works	Urban District Council	A. E. Caldecutt, 17 Newgate Street, Chester.
,,	4	Heswell, Cheshire—Road Construction	Wirral R.D.C.	T. Davies, 33 Kingsland Road, Birkenhead.
,,	6	Grimsby—Street Works	Corporation	H. Gilbert Whyatt, Borough Surveyor, Town Hall Sq., Grimsby
,,	7	Bromley, Middlesex—Asphalting	Managers of Poplar and Stepney Asylum District.	Engineer, Sick Asylum, Devon's Road, Bromley, Middlesex.
,,	7	Bromley, Kent—Street Widening	Urban District Council	Surveyor, Council Offices, Bromley, Kent.
,,	7	Bootle, Lancs—Improvement Works	Corporation	Borough Engineer, Bootle, Lancs.
,,	13	Margate—Materials	Town Council	E. A. Borg, Borough Surveyor, Town Hall, Margate.
,,	13	Beckenham—Road Widening and Paving	Urban District Council	J. A. Angell, Surveyor, Council Offices, Beckenham.
,,	14	West Ham, E.—Making-up Streets	Borough Council	J. G. Morley, Borough Engineer, Town Hall, West Ham, E.
,,	14	Felixstowe—Improving Road	Urban District Council	Surveyor, Town Hall, Felixstowe.
,,	14	Bournemouth—Road-making	Corporation	F. W. Lacey, Borough Engineer, Bournemouth.
,,	14	Dartford—Kerbing, &c.	Urban District Council	W. Harston, Surveyor, 8 Hythe Street, Dartford.
		SANITARY:		
Oct.	2	Blaydon-on-Tyne—Scavenging	Urban District Council	R. Biggins, Sanitary Inspector, Council Offices, Blaydon-on-Tyne.
,,	3	London, S.W.—Stoneware Drain Pipes, &c.	London County Council	Park Department, 11 Regent Street, S.W.
,,	3	Pencoed, near Bridgend—Drains and Water-closets at Schools	School Board	I. John, Clerk, Maesygwaelod, Pencoed, near Bridgend.
,,	6	Farnborough—Sewerage and Sewage-disposal Works	Urban District Council	J. E. Hargreaves, Engineer, Town Hall, Farnborough, Hants.
,,	6	Bishop Auckland—Sewers, &c.	Rural District Council	C. Johnson, Surveyor, Crofton House, Bishop Auckland.
,,	7	London, S.W.—Lime and Proto-Sulphate of Iron	London County Council	Engineer's Department, County Hall, Spring Gardens, S.W.
,,	8	Manningtree, Essex—Scavenging, &c.	Tendring R.D.C.	A. J. H. Ward, 42 Church Street, Norwich.
,,	10	London, E.C.—Sanitary Fittings to Artizans' Dwellings	Corporation	City Engineer, Guildhall, E.C.
,,	24	Brigg, Lancs—Sewers, &c.	Urban District Council	R. E. W. Berrington, 23 Victoria Street, Westminster, S.W.
Dec.	15	Monte Video—Sanitary Works	Government of Uruguay	Uruguay Legation, London.
		TIMBER:		
Oct.	2	Ipswich—1,000,000 Woodpaving Blocks	Corporation	E. Buckham, Borough Surveyor, Town Hall, Ipswich.
,,	6	Manchester—Timber	Lancs and Yorks Rly. Co.	Stores Department, Osborn Street, Manchester.

COMPETITIONS OPEN.

DATE OF DELIVERY.		DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Oct.	9	Greenwich—Public Library	£50, £30.	F. Robinson, Town Clerk, Town Hall, Greenwich.
,,	14	Newark—Alterations and Additions to Infirmary	£21.	Mr. H. Colton, Clerk to Guardians, 27 Lombard Street, Newark
,,	15	Strood—Infectious Diseases Hospital	£15 15s.	J. E. Povey, Clerk, Strood Union, Rochester.
,,	20	Port Erin—Railway Station	£21.	G. H. Wood, Secretary, Isle of Man Railway Co., Douglas.
Nov.	1	Allahabad—Memorial to Queen Victoria	2,000 Rs.	H. N. Wright, Indian Civil Service, Allahabad, India.
,,	29	Ramsgate—Technical Schools and Free Library	£50, £25, £15.	T. G. Taylor, Borough Surveyor, Albion House Ramsgate.
Jan.	31	Cape Town—University Buildings	£400, £200, £100.	Agent-General for the Cape of Good Hope, London.

New Companies.

Patent Automatic Sewage Distributors, Ltd.

Registered to carry on the business of manufacturers of and contractors for all kinds of apparatus, materials and works for the treatment, disposal and purification of sewage, sanitary engineers, &c. Capital £25,000 in £1 shares. The first directors are C. J. Whittaker, F. Candy and F. P. Candy.

Farrance & Boyton, Ltd.

Registered to acquire the business carried on at Pylle, near Shepton Mallet, and at Evercreech, Somerset, as Farrance & Boyton, and to carry on the business of brick, tile, pipe, pottery, earthenware and china manufacturers, makers of and dealers in artificial stone, &c. Capital £8,000 in £10 shares (400 preference). J. J. Farrance and F. Boyton are permanent directors.

A. R. Bullivant & Sons, Ltd.

Registered to acquire all or part of the business carried on by A. R. Bullivant, W. R. Bullivant, A. G. Bullivant and J. Bullivant, as A. R. Bullivant & Sons, at Manchester and elsewhere, as builders and contractors, and to carry on the business of brick, tile, pipe, earthenware, china, terra-cotta and ceramic ware manufacturers, paviors, manufacturers of and dealers in artificial stone, timber merchants, &c. Capital £100,000 in £1 shares. The first directors are A. R. Bullivant, W. R. Bullivant, A. G. Bullivant and J. Bullivant. Registered office: Hartley Street, Moston, near Manchester.

William Spencer & Co., Ltd.

Registered to acquire the businesses of quarrymasters, limestone-burners and merchants as now carried on at Stanhope, Durham, by William Spencer & Co. and Walton & Co.; to adopt agreements with J. V. J. and J. T. Walton, W. Spencer, J. Douglas and Jane Hanson, and to carry on business as limestone quarryowners, lime-burners, merchants and lime manufacturers, ganister quarryowners, brickmakers, &c. Capital £10,000 in £10 shares. Registered office: Bishopley Quarries, Bollihope, Frosterley, Durham.

William Cook & Son (Sheffield), Ltd.

Registered to acquire the business carried on by William Cook & Sons at Washford Road, Sheffield, and to carry on the business of manufacturers of and dealers in steel, files, saws, edge tools, crucible steel castings, hardware goods, and steel and iron wagons, &c. Capital £10,000 in £1 shares. The first directors are W. Cook, sen., Andrew Cook and T. Briggart.

Lightwoods Estate Co., Ltd.

Registered to acquire land and buildings at Smethwick, known as the Lightwoods Estate; and to carry on the business of builders, planters, contractors, owners of and dealers in and with land, houses, &c. Capital £15,000 in £1 shares. The first directors are H. T. Edge, E. Lawson, J. H. Smith, W. H. Langley and J. Keay.

New Inverted Incandescent Gas Lamp, Ltd.

Registered to adopt agreements (1) with the Inverted Incandescent Gas Lamp Syndicate, Ltd., (2) with the Sunlight and Safety Lamp Co. Ltd., and (3) with James Bridger, for his appointment as general manager; and to carry on the business of manufacturers of and dealers in lamps, lights, fittings, burners and other apparatus for improving or increasing the illuminating or heating power of gas, oil, spirit and other heat- and light-producing agents, &c. Capital £125,000 in £1 shares. Registered office: Dashwood House, 9, New Broad Street, E.C.

Isle of Man Granite and Silica Quarries Co., Ltd.

Registered with a capital of £5,000 in £1 shares. Registered office: 21, Bridge Street, Bradford.

William Sutcliffe, Sons & Co., Ltd.

Registered to acquire the business of a timber importer and merchant carried on by W. P. St. J. Sutcliffe, at 19, Sweeting Street, Liverpool, as William Sutcliffe, Sons & Co.; to acquire the interest of the said W. P. J. Sutcliffe in certain property; and to carry on the business of wholesale and retail timber importers, merchants and dealers, sawmill owners, sawyers, builders, contractors, quarry-owners, dealers in stone and building materials, &c. Capital £1,500 in £1 shares. W. P. St. J. Sutcliffe is permanent managing director. Registered office: 19, Sweeting Street, Liverpool.

Richard Sankey & Son, Ltd.

Registered to acquire the business of Richard Sankey & Son, Ltd. (incorporated in 1897), and to carry on the business of manufacturers of and dealers in pottery, earthenware, terra-cotta, bricks, tiles, pipes and building materials, quarry-owners, dealers in chalk, flint, gravel, stone, limestone, clay, sand, &c., manufacturers of and dealers in cement, concrete, lime, plaster-of-Paris, whiting and artificial stone, builders, decorators, carpenters, owners, &c. Capital £75,000 in £1 shares. The first are E. A. T. Sankey, T. Starr, C. L. Sankey and T. Leman.

Penrhiwceiber Cottage Co., Ltd.
Registered to acquire any lands and buildings in the United Kingdom, or any interest therein, and to carry on the business of land and property owners, builders, financiers, &c. Capital £3,000 in £10 shares. The first directors are D. Harris, E. Morris, J. D. Lisle, and J. Williams. Registered office: Ffrwd Offices, Mountain Ash.

Tenders.

Information from accredited sources should be sent to "The Edstor" at latest by noon on Monday if intended for publication in the following Wednesday's issue. Results of tenders cannot be accepted unless they contain the name of the Architect or Surveyor for the work.
Addressed postcards on which lists of tenders may be posted will be sent post free on application to the Manager, BUILDERS' JOURNAL, Effingham House, Arundel Street, Strand, W.C.

Amble (Northumberland).—For the erection of twenty-one workmen's houses at Amble, for the Warkworth Harbour Commissioners. Messrs. Thomas Meik & Sons, engineers, 29 St. Andrew Square, Edinburgh:—

D. Hall, 17 Elizabeth Street, Gateshead	£4,615 0 0
Elliott Brothers, Preston, Chathill	4,541 0 0
W. Chapman, Front Street, Bedlington	4,115 10 11
R. M. Gibson, Mirk Lane, Gateshead	4,062 6 9
Urpeth & Brown, Amble	4,014 11 10
R. Walker,* Bedlington Station	3,395 1 8

* Accepted.

Bishop's Itchington (Worcs.)—For the erection of an infants' school for 100 pupils for the School Board. Mr. Francis P. Trepess, F.I.A.S., architect, Warwick:—

J. Tallip, Warwick	£994 10
T. Barley, Leamington	895 0
I. H. Cashmore, Warwick	829 19
G. Watson,* Southam	768 0

* Accepted.
Quantities by architect.

Bowes (near Barnard Castle).—For the construction of certain works of water supply for the village of Bowes, near Barnard Castle, comprising the laying of 3,000yds. of 3in. cast iron water-main and fittings, the construction of a covered service reservoir, and erection of a pumping station, for the Startforth Rural District Council. Mr. J. E. Parker, A.M.I.C.E., engineer, Post Office Chambers, Newcastle-on-Tyne:—

J. Hardy, West Hartlepool	£2,368 0 0
G. Wills, South Shields	2,111 2 0
T. Bell, Market Weighton	2,038 3 8
H. H. Lee, Barnard Castle	1,844 2 6
S. Walker, Cockfield	1,780 0 0
J. Jackson & Sons, Penrith	1,612 11 3
E. W. Jackson, Barnard Castle	1,595 7 0
A. E. Hobbs, Stockton	1,551 8 9
C. Hedley, Barnard Castle	1,427 12 8
Bushy & Sons, Leyburn	1,356 15 8
C. E. Raine,* Barnard Castle	1,348 12 0

* Accepted. [Engineer's estimate, £1,310.]

Bowley, Middlesex.—For alterations and repairs to the rectory, for the Rev. W. R. C. Hamilton. Mr. G. St. Pierre Harris, architect, 8 Ironmonger Lane, E.C.:—

C. F. Kearley	£663
H. Borton & Sons	652
Fassnidge & Sons*	639

* Accepted.

St. Mary Cray, Kent—For the erection of additions to two shops. Mr. G. St. Pierre Harris, architect, 8 Ironmonger Lane, E.C.:—

T. Knight	£1,228 0 0
H. Somerford & Son	1,132 0 0
J. Smith	1,129 0 0
Stebbings & Pannett	974 10 0

Westerham Hill, Kent.—Accepted for alterations and additions to "Fox and Hounds," for Messrs. Fox & Sons. Mr. G. St. Pierre Harris, 8 Ironmonger Lane, E.C.:—
E. Martin & Sons (Westerham) £1,472 13 0

Chesterfield.—For the erection of infirmary, nurses' home, laundry and other works at their workhouse, Newbold Road, Chesterfield, for the Guardians of Chesterfield Union. Messrs. Rollison & Son, architects, 13 Corporation Street, Chesterfield:—

J. Fidler, Eckington	£45,634 0 0
J. Shillitoe & Son, Bury St. Edmunds	44,800 0 0
J. H. Vickers, Ltd., Nottingham	43,482 17 5
H. Vickers & Son, Nottingham	43,000 0 0
F. Lee, Alfreton	42,690 0 0
J. Lowe & Son, Burton-on-Trent	41,561 1 9
J. Hodson & Son, Nottingham	39,997 17 6
W. Maule, Nottingham*	39,519 0 0

* Accepted.

Dover.—For the erection of Turkish baths adjoining the town hall, Dover, for the Town Council. Mr Henry E. Stilgoe, A.M.I.C.E., borough engineer:—

H Richardson	£3,100 0 0
G. H. Denne & Son, Deal	2,938 0 0
T. T. Denne, Walmer	2,850 0 0
Austen & Lewis	2,778 0 0
G. Munro	2,597 18 4
G. Keller	2,586 0 5
R. W. Paramor	2,494 0 0
Gann & Co., Whitstable	2,451 18 7
E. Stokes	2,448 0 0
R. & G. Brisley*	2,399 0 0

* Accepted. [Rest of Dover]

Downe, Kent.—Accepted for additions and alterations to a private house. Mr. G. St. Pierre Harris, architect, 8 and 9, Ironmonger Lane, E.C.:—
W. Borer £173 17

Hadleigh.—For the erection of a new school. Messrs. William Eade, F.R.I.B.A., and Edwin Thomas Johns, architects, Ipswich:—

	Total (including wall).	Wall.	In pitch-pine.
Suckling & Co.	£5,592 0 0	£1,920 0 0	£70
G. & J. Ambrose	5,394 0 0	1,807 5 0	60
F. Bennett	5,305 0 0	1,550 0 0	..
E. West	5,223 0 0	1.650 0 0	65
S. Wiles	5,204 0 0	1,639 19 10	50
Downs & Stephenson	5,100 0 0	1,478 0 0	..
E. Catchpole	5,100 0 0	1,485 0 0	..
E. Adams	5,012 17 0	1,575 0 0	35
H. J. Linzell	4,985 0 0	1,550 0 0	20
T. Parkington & Son	4,800 0 0	1,600 0 0	..
C. Roper	4,140 17 6	1,500 0 0	..

NOTE.—The final acceptance of a tender has been deferred to an adjourned meeting.

Featherstone (Yorks).—For extension of the North Featherstone Lane Board Schools, for the Featherstone School Board. Mr. W. Hamilton Fearnley, architect, Station Lane, Featherstone:—

W. Barton, Selby	£2,120 0 0
N. Dixon, Ackworth	2,097 0 0
Jackson & Dumberline, Hull	1,999 0 0
G. Clements,* Featherstone	1,818 17 5

* Accepted.

Halliford.—Accepted for the erection of an annexe to bungalow, for Mr. J. Parker-Ayers. Mr. H. Fuller-Clark, architect, 30 John Street, Bedford Row, W.C.:—
Simpson & Co. £112

Ipswich.—For the erection of electricity works. Mr C. Stanley Peach, F.R.I.B.A., architect:—

	Station buildings.	Chimney shaft.	Destructor.	Car shed.
W. Chambers, Colchester	£30,166	4,132	6,380	6,999
A. Coe, Ipswich	27,500	3,513	5,489	6,750
A. Custodis, Sheffield	—	2,563	—	—
Davey & Co., Southend	28,851	4,694	5,850	6,752
Sir J. T. Firbank, London	32,233	4,148	6,397	7,846
R. Girling, Ipswich	29,499	—	5,927	7,068
Grimwood, Ipswich	27,683	3,917	5,599	6,753
S. A. Kenney, Ipswich	26,948	3,994	5,489	6,265
Linzell, Ipswich	29,400	4,250	5,995	7,385
The London Boiler Setting Co.	—	4,120	—	—
T. Parkington & Son, Ipswich	28,000	4,086	6,000	6,914
G. A. Pillatt, Nottingham	28,750	3,680	6,680	7,500
C. Roper, Ipswich	29,462	3,224	6,411	6,837
Spencer, Westminster	27,500	3,350	5,750	6,750
Shillitoe, Bury St. Edmunds	29,000	3,700	5,500	6,700
E. Saunders, Dover Court	30,451	—	—	—
Smethurst, Oldham	27,170	3,600	5,475	6,790
Townson, Bolton	27,720	3,725	5,675	7,020
J. H. Wright, Leigh	29,016	3,836	6,200	1,722
C. Wall, Chelsea	29,000	4,300	6,250	8,100
Whitehead, London	29,389	3,869	5,999	7,149

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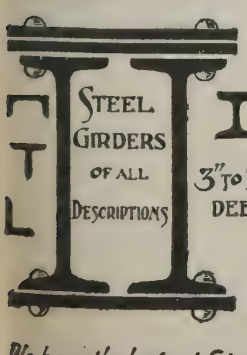
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Ilfracombe.—For the construction of masonry intakes in the parish of Challacombe, and laying cast-iron pipes; also for carrying out other works necessary in constructing the new gravitation main from Challacombe to Ilfracombe, being about 16 miles of pipe line, for the Ilfracombe Urban District Council. Mr. O. M. Prouse, A.M.I.C.E., engineer, Town Hall, Ilfracombe:—

W. C. Shaddock, Bryntirion, Plymouth	£12,400
J. Dickson, Dunsford, near Exeter	9,135
O. G. Osenton, Westerham	6,862
J. Alderman,* West Looe, Cornwall	6,197

* Accepted.

Ipswich.—For alterations to Co-operative Stores, Carr Street. Messrs. William Eade, F.R.I.B.A., and Edwin Thomas Johns, architects, Ipswich:—

A. Sadler	£4,395 0
W. Grayston	4,335 0
E. Adams	4,321 0
C. Roper	4,299 10
V. A. Marriott	4,182 0
H. J. Linzekl	4,145 0
J. Shillitoe	4,000 0
Grimwood & Sons	3,993 0
E. Catchpole	3,949 0
T. Parkinton & Son	3,800 0
S. Kenny*	3,648 0

* Accepted.

London, S.E.—For the construction of two under ground conveniences (one at the junction of Stangate with Westminster Bridge Road, and the other at Loughborough Junction) for the Lambeth Borough Council. Mr. Henry Edward, C.E., borough engineer:—

Stangate convenience.

F. G. Minter, Westminster	£4,469
Thomas & Edge, Woolwich	4,355
Doulton & Co., Ltd.	4,262
Davis & Bennett	4,210
B. Finch & Co., Ltd.	4,133
G. Jennings, Ltd.	4,051
B. E. Nightingale	3,832
A. E. Symes, Stratford, E.	3,710
J. Parsons,* 190 & 192, Waterloo Road, S.E.	3,289

Loughborough Junction convenience.

Rice & Son, 15, Stockwell Road, S.W.	£3,293 0 0
F. G. Minter	3,073 0 0
Thomas & Edge	3,145 0 0
B. Finch & Co., Ltd.	2,965 0 0
Doulton & Co., Ltd.	2,740 0 0
G. Jennings, Ltd.	2,845 0 0
Davis and Bennett	2,650 0 0
A. E. Symes	2,615 0 0
R. Harding & Son, 75, Arodene Road, Brixton, S.W.	2,553 4 6
J. Parsons*	2,495 0 0

* Accepted.

London, N.E.—For the erection of a block of public baths and wash-houses in Mansfield and Laburnum Streets, Haggerston, N.E., for the Corporation of Shoreditch. Mr. Alfred W. S. Cross, architect, 53A, Maddox Street, W. Quantities by Mr. Arthur C. Cross, 17, Old Queen Street, Westminster:—

Stimpson & Co.	£66,000	Chessum & Son	£62,838
Whitehead & Co., Ltd.	64,625	Lawrence & Sons	62,352
J. Greenwood	64,019	A. Porter	62,202
C. G. Hill	64,000	B. E. Nightingale	62,000
Johnson & Son	63,980	Shillitoe & Sons	62,000
Sabey & Son	63,349	W. Wallis	61,997
Wall & Co.	63,298	Killby and Gayford*	61,233

* Amended tender, £54,922, accepted.

London, N.—For making-up Stanley, Highworth and Union Roads and Jones's Lane, Bounds Green, for the Southgate Urban District Council. Mr. C. G. Lawson, surveyor:—

Stanley, Highworth and Union Roads.

Griffiths & Co., Ltd., Bishopsgate, E.C.	£3,579 10 0
J. A. Dunmore, Highgate, N.	3,317 0 0
C. Ford, Harlesden, N.W.	3,156 0 0
T. Adams,* Wood Green, N.	2,998 0 0

Jones's Lane.

Griffiths & Co., Ltd.	2,675 15 3
C. Ford	2,593 0 0
T. Adams.	2,382 0 0
J. A. Dunmore*	2,234 0 0

* Accepted.

Orpington, Kent.—Accepted for decorations to village hall, for A. Brown, Esq. Mr. G. St. Pierre Harris, architect, 8 and 9, Ironmonger Lane, E.C.:—

W. R. Taylor	£160

Swansea.—For the erection of an infants' school, for the Oystermouth School Board. Mr. Henry A. Ellis, M.A., architect, 10 Fisher Street, Swansea:—

D. Jenkins, Swansea	£2,390
Bennet Brothers, Swansea	2,354
J. G. Morris, Mumbles	2,330
Lloyd Brothers, Swansea	2,314
Marles & Son, Swansea	2,300
W. Thomas, Mumbles	2,220
J. & D. Jones, Swansea	2,200
T. Richards, Swansea	2,140
Venning & Gaen, Cardiff	2,075

Architect's estimate, £2,100. Quantities by Mr. A Bucknall, Swansea.

St. Paul's Cray, Kent.—For the erection of four cottages. Mr. G. St. Pierre Harris, architect, 8 and 9, Ironmonger Lane, E.C.:—

F. Wood	£1,558 16
Somerford & Son	1,420 0
T. Knight*	1,349 0
C. Dabner	1,136 0

* Accepted.

Woolwich.—For the erection of new municipal buildings at Woolwich, for the Woolwich Borough Council:—

With town hall.

M. Wells & Co., Vauxhall	£68,777
Johnson & Son, Leicester	68,674
W. Downs, Walworth	68,074
Holloway Brothers, Westminster	67,996
B. E. Nightingale, Lambeth	67,662
J. Smith & Son, Norwood	67,184
H. L. Holloway, Deptford	66,456
H. Lovatt, Wolverhampton	64,362
Kirk & Randall, Woolwich	62,611
Holliday & Greenwood, Brixton	62,292
J. Shillitoe, Bury St. Edmunds	62,000
F. G. Minter, Westminster	61,890
H. J. Stevens, Exeter	60,606
J. Chessum, Bow	56,771

Without town hall.

M. Wells & Co.	£58,266
Holloway Brothers	58,111
W. Downs	57,985
B. E. Nightingale	57,415
J. Smith & Son	56,987
H. L. Holloway	56,069
H. Lovatt	54,398
J. Shillitoe	53,000
Holliday & Greenwood	52,814
Kirk & Randall	52,805
F. G. Minter	52,600
H. J Stevens	51,027
Johnson & Son	50,959
J. Chessum	49,125

NOTE.—Tenders referred to committee.

Westbury-upon-Trym (Glos.).—For the construction of an approach road, roads and paths, boundary wall, railing, fencing, &c., required in the laying-out of cemetery at Westbury-on-Trym, for the Batton Rural District Council. Mr. A. P. I. Cotterell, A.M.I.C.E., engineer, 23 Baldwin Street, Bristol:—

J. Flower, Shirehampton, near Bristol	£2,459 0
Mereweather & Sons, West Street, Bedminster, Bristol	1,778 0
E. A. Chase, 11 Richmond Avenue, Montpelier, Bristol	1,727 12
J. E. B. James, 17 Milk Street, Bristol	1,674 10
M. Lovell, 12 Tamworth Place, Arley Hill, Bristol	1,653 0
W. and J. Bennett,* 162 Pennywell Road, Bristol	1,550 0
E. Love, Hampton Road, Bristol, no sum stated.	

* Accepted.

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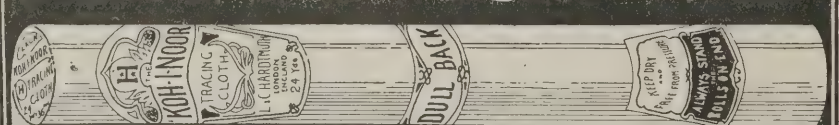
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Coming Events.

Wednesday, Oct. 1.
SANITARY INSTITUTE (Lectures, &c.).—Mr. E. J. Steegmann, M.B., on "The Atmosphere," 7 p.m.
BUILDERS' FOREMEN AND CLERKS OF WORKS' INSTITUTION.—Ordinary Meeting at 8 p.m.

Friday, Oct. 3.
ARCHITECTURAL ASSOCIATION.—Presidental Address by Henry T. Hare, F.R.I.B.A., and Distribution of Prizes at 7.30 p.m.
SANITARY INSTITUTE (Lectures and Demonstrations for Sanitary Officers, Part I.).—Mr. E. J. Steegmann, M.B., on "Meteorology," 7 p.m.

Saturday, Oct. 4.
BRITISH INSTITUTE OF CERTIFIED CARPENTERS.—Meeting at Carpenters' Hall at 6 p.m.
NORTHERN ARCHITECTURAL ASSOCIATION.—Visit to College Road Presbyterian Church and Benwell Presbyterian Church, Newcastle, 3 p.m.
SANITARY INSTITUTE (Lectures and Demonstrations for Sanitary Officers, Part I.).—Inspection and Demonstration at Wimbledon Sewage Works at 2.30 p.m., conducted by Mr. C. H. Cooper, M.I.C.E.

Monday, Oct. 6.
SOCIETY OF ENGINEERS.—Mr. Augustus R. Galbraith on "The Hennebique System of Concrete Construction," 7.30 p.m.
LIVERPOOL ARCHITECTURAL SOCIETY.—Opening Address by the President. The revised schedule of charges will be submitted for adoption. 6 p.m.

Tuesday, Oct. 7.
SANITARY INSTITUTE (Lectures and Demonstrations for Sanitary Officers, Part I.).—Mr. J. Priestley, B.A., M.D., on "Sanitary Law," 7 p.m.

Wednesday, Oct. 8.
SANITARY INSTITUTE (Lectures and Demonstrations for Sanitary Officers, Part I.).—Mr. J. Priestley, B.A., M.D., on "Sanitary Law," 7 p.m. Inspection and Demonstration at Lambeth Disinfecting Station, Wanless Road, Loughborough Junction, at 2.30 p.m.

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Lead, white, ground, carbonate	do.	1 4 10	—
Do. red	do.	1 0 4½	
Linseed Oil, barrels	do.	1 6 9	—
Petroleum, American	per gal.	0 0 5⅜	0 0 5½
Do. Russian	do.	0 0 4⅞	6 0 5½
Pitch	per barrel	0 7 0	
Shellac, orange	per cwt.	5 5 0	—
Soda, crystals	per ton	3 2 6	3 5 0
Tallow, Home Melt	per cwt.	1 8 6	1 9 0
Tar, Stockholm	per barrel	1 1 6	—
Turpentine	per cwt.	1 15 1½	—

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Copper, sheet, strong	per ton	69 0 0	—
Iron, Staffs., bar	do.	6 10 0	8 10 0
Do. Galvanised Corrugated sheet	do.	11 5 0	11 10 0
Lead, pig, Soft Foreign	do.	11 0 0	—
Do. do. English common brands	do.	11 5 0	—
Do. sheet, English 3lb. per sq. ft. and upwards	do.	13 10 0	
Do. pipe	do.	14 0 0	—
Nails, cut clasp, 3in. to 6in.	do.	9 5 0	—
Do. floor brads	do.	9 0 0	—
Steel, Staffs., Girders and Angles	do.	5 15 0	6 5 0
Do. do. Mild bars	do.	6 10 0	7 0 0
Tin, Foreign	per ton	118 5 0	118 15 0
Do. English ingots	do.	118 10 0	119 10 0
Zinc, sheets, Silesian	do.	24 0 0	—
Do. do. Vieille Montaigne	do.	24 0 0	—
Do. Spelter	do.	19 0 0	19 5 0

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Do. Petersburg	per bundle	0 0 8	—
Deals, Archangel 2nd & 1st	per P.Std.	9 15 0	24 15 0
Do. do. 4th & 3rd	do.	9 0 0	15 15 0
Do. do. unsorted	do.	5 12 6	6 10 0
Do. Riga	do.	6 15 0	12 10 0
Do. Petersburg 1st Yellow	do.	16 5 0	—
Do. do. 2nd „	do.	9 0 0	12 10 0
Do. do. White	do.	7 5 0	12 10 0
Do. Swedish	do.	5 15 0	15 5 0
Do. White Sea	do.	13 5 0	17 5 0

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An Architectural Causerie.

Off with his Head.

Evidently William Hunter, builder, of Belfast, is a man of a warlike disposition, with a terrible gleam in his eye and a threatening gurgle in his throat; and evidently William Gillespie, building inspector to the Belfast Corporation, is a man of perseverance, though he is wise in thinking that neck or nothing is not always a profitable maxim to adopt. Hunter is just one of those men who do not build for eternity. Last year there was a house of his on the Shore Road at Belfast, but somehow or other the mortar was made of scrapings—perhaps a little experiment—so the Corporation allowed a fine of £5 as a recognition of the builder's ingenuity. But, not long after, the house tumbled down and when, phœnix-like, it rose from its ashes (this is of course a metaphor, and it would perhaps be better to say, when it rose from its scrapings) the persevering building inspector found that the new work was no better than the old. Consequently he objected, and it was at this point that Hunter showed his hand—aye, his teeth as well, and maybe his tongue; for he stopped Gillespie on his round of inspection and threatened that if he put his foot on the job he would break his neck. And the inspector said nothing. But he seems to have moved, for we next learn that if he proceeded any further this fierce builder would break his skull. In face of such dangerous conditions, what did Gillespie do? Did he venture and have his neck or his skull broken, or both? We are told that he "proceeded with his inspection," and then it was the builder caught him by the throat, pushed him off the premises, and threatened to cut off his head if he put a foot on the building again. And what happened? The Bench fined this building ogre 40s and costs: and Belfast in future will probably be a more tolerable place for the building inspector.

Disgraceful.

The Bristol Board of Guardians has behaved most scandalously in regard to the proposed new infirmary for sick poor. The existing workhouse at Eastville is inadequate, and the sick are housed in badly situated wooden buildings, where the danger of fire is "something awful." This being the case, it was proposed three years ago to build a new infirmary. A deputation visited various large unions and infirmaries, the Guardians settled the general arrangements of their new building, competitive designs were invited and premiums of £200, £150 and £100 offered. Mr. H. Percy Adams, F.R.I.B.A., was the successful architect, and according to his designs specifications and particulars of quantities were drawn up and tenders advertised for. In response, sixteen building firms submitted tenders for their own particular work and seventeen other firms sent in tenders for the supply and erection of steam boilers, laundry machinery, &c., while other tenders were received for the electrical work. The matter came before the last meeting of the Board of Guardians, when the New Infirmary Committee recommended the acceptance of the second tender on the list (that of Messrs. Kerridge & Shaw, Cambridge, builders' work, £118,975), Messrs. J. Hodson & Son, of Nottingham, having asked permission to withdraw their tender, which was the lowest (£114,950). The lowest tender for the boilers and general engineering was £10,858 and for the electrical work £5,580; so that altogether the cost came to £135,413, the architect's estimate being £141,000. Now the Bristol Board of Guardians, by thirty-two votes to twenty-five, has rejected their Committee's recommendation. This, as we said at first, is a scandalous proceeding. There is no need to elaborate the facts—anyone can see what a disgraceful waste of time this decision means. The Committee stated that the new infirmary would add ½d. in the £ to the rates. It is futile, as one member of the Board did, to say that when the scheme was put forward the city was not pledged to an expenditure of two millions on the docks. Their architect's estimate is nearly £6,000 above the contractors' tenders and the Board should have decided then whether or not they could afford the expense; instead of which they put people to incalculable trouble and then drop the scheme. The whole thing is a muddle and a disgrace to them.



St. Augustine's, Kilburn.

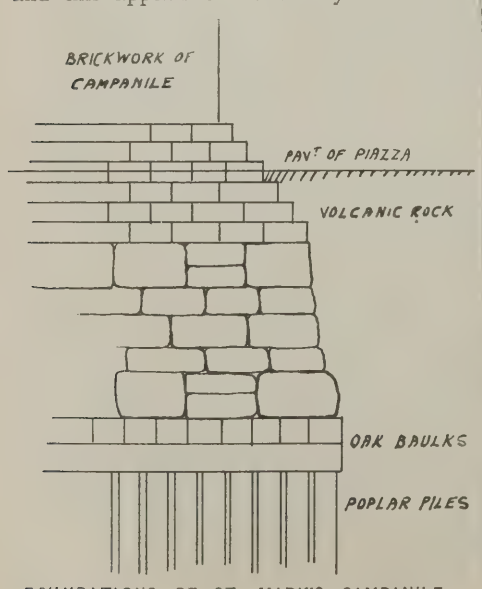
The addition to these schools gives a large classroom on each upper floor, and an external staircase (not shown by the illustration on this page) communicating with the middle floor and the playground, which is below the street level. Lavatories are provided on the ground floor. The work was carried out by Messrs. Beatley Brothers, of Kilburn, under the supervision of the architect, Mr. Harry Sirr.

THE FOUNDATIONS OF VENICE.

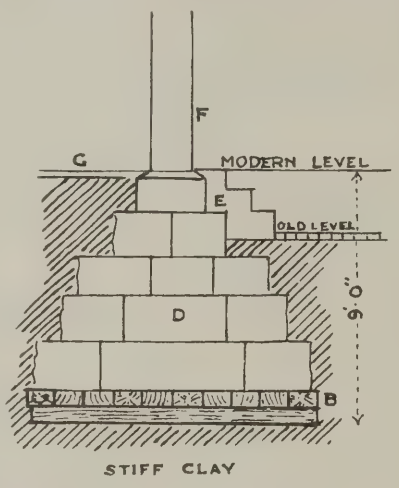
By ROBERT W. CARDEN, A.R.I.B.A.

THE great Campanile of St. Mark, at Venice, has already fallen, and for at least the third time the papers are calling attention to the dangerous condition of the Ducal Palace. The time is therefore opportune for a few notes on the foundations of Venice generally.

When the inhabitants of the Venito—in the ninth century—decided finally to quit the mainland and build for themselves the mighty Republic, the islands which they selected, and upon which Venice still stands and will continue to stand in spite of the evil prophecy of many modern prophets, were barren marshes slightly raised above the level of the waters of the surrounding lagoons, with no particular vegetation save for a few isolated thickets. But situated as these islands were, useless for agricultural purposes and impregnated with sea salt, they possessed an advantage which rendered the building of the city possible; and this advantage lay in the long sand banks, or *lidi*, which are situated to the east of Venice and protect the city from the force of the open sea. The Venetians early realized the value of these natural outworks, and protected and rendered them permanent by the building of sea walls on either side of the sand-banks, the chief and strongest being towards the open Adriatic. By this means Venice was guarded against the possibility of being overwhelmed by storms, and as there were but two narrow navigable channels between these outworks the chances of attack by a foreign fleet were remote. The lagoon in which Venice lies is the "*laguna viva*," or tidal water, but even here there is only a 2ft. tide, while in some of the smaller lagoons nearer the mainland there is no tide at all. Thus we find that these unattractive little islands were better than they might have been, and, such as they were, were likely to remain indefinitely, for there was no thundering surf to incessantly beat against their mud-banks and overwhelm them, and very little tidal action to make inroads by a slower and more insidious attack. We are told that before the basilica of St. Mark was founded its site and a portion of the Piazza were an open grassy field with rows of trees and a canal down the middle. The western half of the square was divided from the portion already mentioned by another canal which was filled up in the twelfth century, and the two halves united into one large space. A third area was added in the sixteenth century, and this appears to be wholly new-made ground. All the buildings, therefore, which compose the celebrated group around the Piazza di San Marco were built upon solid ground, excepting the Procuratie Nuove on the south side of the square, which stands upon the third addition to this site. The basilica and the threatened Ducal Palace stand upon solid ground which has been in existence ever since Nature framed the lagoon. As for the unhappy Campanile, that too stood upon solid ground, but when first founded the western front—the side which is seen in the best known view of this group showing the length of the square, St. Mark's, the Campanile, the Ducal Palace and a corner of the Library—was washed by, or lay close to the water which previously occupied the spot where the Procuratie Nuove now stands, as already stated.



FOUNDATIONS OF ST. MARK'S CAMPANILE



FOUNDATIONS OF THE DOGES' PALACE.
B, oak planks; D, footings of trachyte and other volcanic stones; E, stylobate now hidden by modern pavement; F, one of the Istrian stone pillars of the palace; G, paving of loggia.

The sub-formation of these islands is, considering their small extent and the numerous interesting canals, remarkably solid, and borings which were from time to time made in sinking wells have revealed a regular succession of good foundation earths. It is true that the upper stratum of from 10ft. to 16ft. in chiefly sand in composition, but below this is a bed of stiff clay lying on another of sand and gravel; below this is an inconsiderable stratum of peat, and below this point come more stiff clay, gravel and peat in regular succession down to the lowest point the borings have reached, about 500 metres in depth, or 1,500ft. It has been stated more than once recently that sheet-piling was resorted to in addition to the ordinary piles, but it seems more probable that the sheet-piling is simply strutting. Well knowing the geological formation upon which they were building, and building as they did monuments to stand for all time, the Venetian engineers took the trouble to excavate the 16ft. of sandy soil which lay between the surface and the clay, and in so excavating must have found it necessary to use strutting to retain the sides of the pit; and this strutting was left in after the foundations were laid and the ground filled in, thus giving rise to the idea that sheet-piling had been driven. That this was not the case is obvious, for the stiff clay would need no lateral confinement with piling, and the sand had already been excavated. To describe the method of forming the foundations of the Campanile would be merely to repeat what has already been published in the columns of this journal, but, so far as the writer is aware, no attempt has been made to arrive at the actual bearing capacity of the base. The base is a square of 12·80 metres, or nearly 42ft., and the piles used were (circular) 0·26 metre in diameter, or 10·24in. nearly. From the description these piles were placed "nearly touching"; so that, assuming 34 piles in each row, this calculation would allow a distance apart of 4·58in., and is probably greater than the actual fact, and consequently the bearing power would be greater than that given in these figures. Piles driven *to* solid ground (these were *entirely* driven *in* solid ground throughout their whole length) are capable of bearing a stress of 1,000lbs. per sq. in. of head. The equation reads:—

$$BW = \frac{22}{7} \times 5{\cdot}12 \times 5{\cdot}12 \times 1{,}000 \times 34 \times 34,$$

which gives a result of 95,240,659lbs., or 42,696½ tons. This estimate is intentionally low, and while the actual weight to be borne was about 22,000 tons the bearing capacity of the base was, more likely, 50,000 tons. The material forming the offsets of the base has been roughly described as trachyte, but as it was brought from the Euganean Hills (near Padua, 23 miles away) it is more likely to be liparite or rhyolite, a volcanic rock of immense hardness and occurring in the form of erupted lavas. As laid under the Campanile, it was capable of sustaining something like a hundred times the task imposed upon it, and consequently the cause of failure does not lie here.

The foundations of all the buildings in Venice are laid in the same manner and with similar materials, except for one important change, namely, that in many buildings erected during and after the fourteenth century the piling was omitted and the oaken raft laid direct upon the stiff clay. The substructure of the Ducal Palace is of this latter type, and it would seem as if there was more cause for anxiety here, as the building being carried on open arcading it follows that the whole weight of the external walls with half that of the floors is collected upon small isolated points of support. Not only this, but the floors are overladen with objects of art, chiefly volumes from the Library of St. Mark, and it is to these that the cause of the cracks which have recently appeared in the fabric is attributed. Each of the supporting columns has a trachyte or similar base upon a raft which extends 10ft. each way and gives a bearing area of 100 sq. ft. in a soil which probably is capable of supporting not more than a ton per ft. super.

It is more than likely that the foundations of Venice have now nothing but the superimposed weight to hold the stones in position, for the mortar used was perforce of inferior quality. The only limestone available for calcining into lime was that of Istria, a stone which possesses not the slightest atom of hydraucity, and we know from the example of the Campanile that in that case it had entirely crumbled to a useless powder. Not until Venice conquered Padua in 1405 were the builders of the Republic able to obtain hydraulic lime, but after that date the Paduan quarries of Albettone were at their disposal, and they obtained thence an exceedingly strong cement which came into universal use and continues to defy salt water and sea air.

Welbeck Abbey.—The boudoir at Welbeck Abbey illustrated on the opposite page is part of the new work in the "Oxford Wing," the outside stone walls only remaining after the recent destruction by fire and water. This lofty room is about 33ft. square. The style followed is Italian of the Cinquecento period. The tall chimney-piece and the doorways are of Istrian marble, with delicate Raphaelesque carving. The doors, pilasters and woodwork generally are of Italian walnut, as is also the coffered ceiling. The latter has gesso enrichment on the soffit of the beams, the carved swags and mouldings on the panels being lacquered. The walls are of green silk. The works of reconstruction and decoration at Welbeck are in the hands of Messrs. Ernest George & Yeates, architects, Messrs. Trollope & Sons being the contractors.

THE HIDDEN MODELS OF ST. PAUL'S.

ST. PAUL'S CATHEDRAL is full of discarded relics, out of which an interesting museum might be formed. Foremost is the great wooden model which Wren himself made, showing his first idea of the cathedral, without a nave, and without the side towers. Poor Wren had a "Board" to deal with, and was controlled and hampered at every turn; but perhaps it is as well that he was forced to build a nave, seeing the enormous crowds with which the church is occasionally filled on festival or ceremonial occasions. Of the earlier church no models exist, but fragments of it may be traced, and in the library, over one of the aisles, are remains of still earlier temples, Roman and British (or Saxon), which were unearthed at the rebuilding, or else during Mr. Penrose's excavations to determine the foundations of Old St. Paul's.

Outside the library is a series of huge coloured cartoons, displayed upon the walls, Sir Edward Poynter's and the late Lord Leighton's designs for the decoration. Leighton's picture, "The Sea giving up its Dead," was designed for this purpose, and exists as a cartoon fifteen or more feet in diameter.

More interesting than these is the complete series of models—sections of a doll's cathedral—showing on a small scale the architectural alterations and decorations of the interior proposed by a succession of artists. The earliest was Alfred Stevens, whose rough designs for the spandrels of the dome were actually carried out in mosaic by Salviati of Venice, after Mr. G. F. Watts and Mr. Britten had translated them on to the full-sized scale. Mr. Watts's one cartoon hangs in the trophy room, a chamber in one of the galleries, so-called because after the Duke of Wellington's funeral the mass of colours and banners used in the church was stored here. In some ways it has been judged a pity that Stevens's design was not pursued throughout, and that he was not permitted to do it; but the poor man did not even live to finish the Wellington Monument.

Next in date to his model came a pair of very gorgeous ones submitted in competition by Mr. Burges and Mr. Penrose, with a series of paintings for the dome. It is interesting to notice that Mr. Burges wished to case the whole interior of the cathedral with marble. Apart from the gigantic expense involved, it would certainly have altered the proportions.

Sir Edward Poynter's is the next model, also with paintings, both quarter and full scale, and in competition with his a model by Mr. Stannus. Last is the model showing Sir William Richmond's scheme, which was adopted. These models are all most delicately and elaborately made, and painted in colours and gold; they show in some cases rich designs for a reredos which were never carried out, an erection on the baldachin pattern, recalling that of St. Peter's at Rome, with which St. Paul's is so often compared. It seems rather a waste to store these instructive relics in a lumber-room which is never traversed except by workmen; and, when the decoration work is completed, one may hope that they will be brought out and placed in some historical collection.—(Extracts from an article by Mr. H. C. Marillier in the "Pall Mall Magazine.")



MUNICIPAL HOUSE-BUILDING.

The Ills of the Glasgow Corporation.

IN the twelfth of the series of articles on "Municipal Socialism" now appearing in the "Times"—a series which has attracted so much attention—the writer deals with municipal house-building in Glasgow. The following are extracts:—

Under the Glasgow Improvements Act of 1866 the City Corporation acquired possession of slum areas extending over 88 acres, and occupied by a population of 51,000 persons, the cost of the scheduled properties being about £2,000,000. Clearances were effected, new streets were formed, and it was hoped that the vacant land would be taken up by builders and turned to account by them. A substantial portion of the land was disposed of to builders on chief rent or feu duty of a capital value of about £300.000. But the charges imposed by the Corporation were very high, and the fact that such extensive clearances had been made, and the former population scattered to other districts, led to there being only a limited demand for shops and houses at that time, so that several of the builders lost very heavily by their speculation. Others were deterred from running the risk of sharing their experiences; and as the Corporation declined to reduce the charges for sites, so as to give to the builders a reasonable chance of a fair return on outlay, the remainder of the land was left on their hands until 1888, when they resolved to carry out a building scheme on their own account. They then proceeded to put up a considerable number of shops and dwelling-houses, seven large lodging-houses, a laundry and a family home, the total value of the property thus erected by them being about £1,000,000. To meet the cost of carrying out their improvement scheme the Corporation had levied on the rental value of the city a rate which was fixed at 6d. in the £ for the first year, 4d. in the £ for the next four years, with subsequent reductions until 1d. in the £ was reached, at which figure it stood until it was finally abandoned in 1888. The charge on the rates thus extended over a period of more than twenty years and the total amount actually contributed by the ratepayers has been put at £600,000.

In return for this expenditure the city gained what was undoubtedly a very great improvement in the disappearance of many narrow streets, filthy courts and insanitary and overcrowded dwellings, and the substitution for them of new and broadened thoroughfares, with healthy dwellings, shops, &c. But there was no suggestion of any

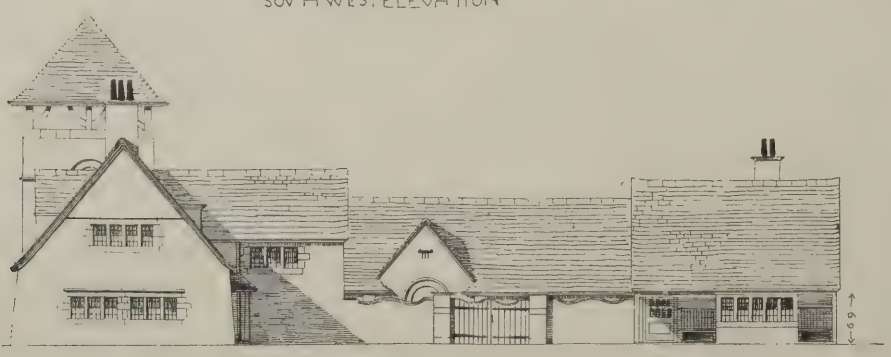


SECTION THRO STABLE YARD & LOOSE BOXES.

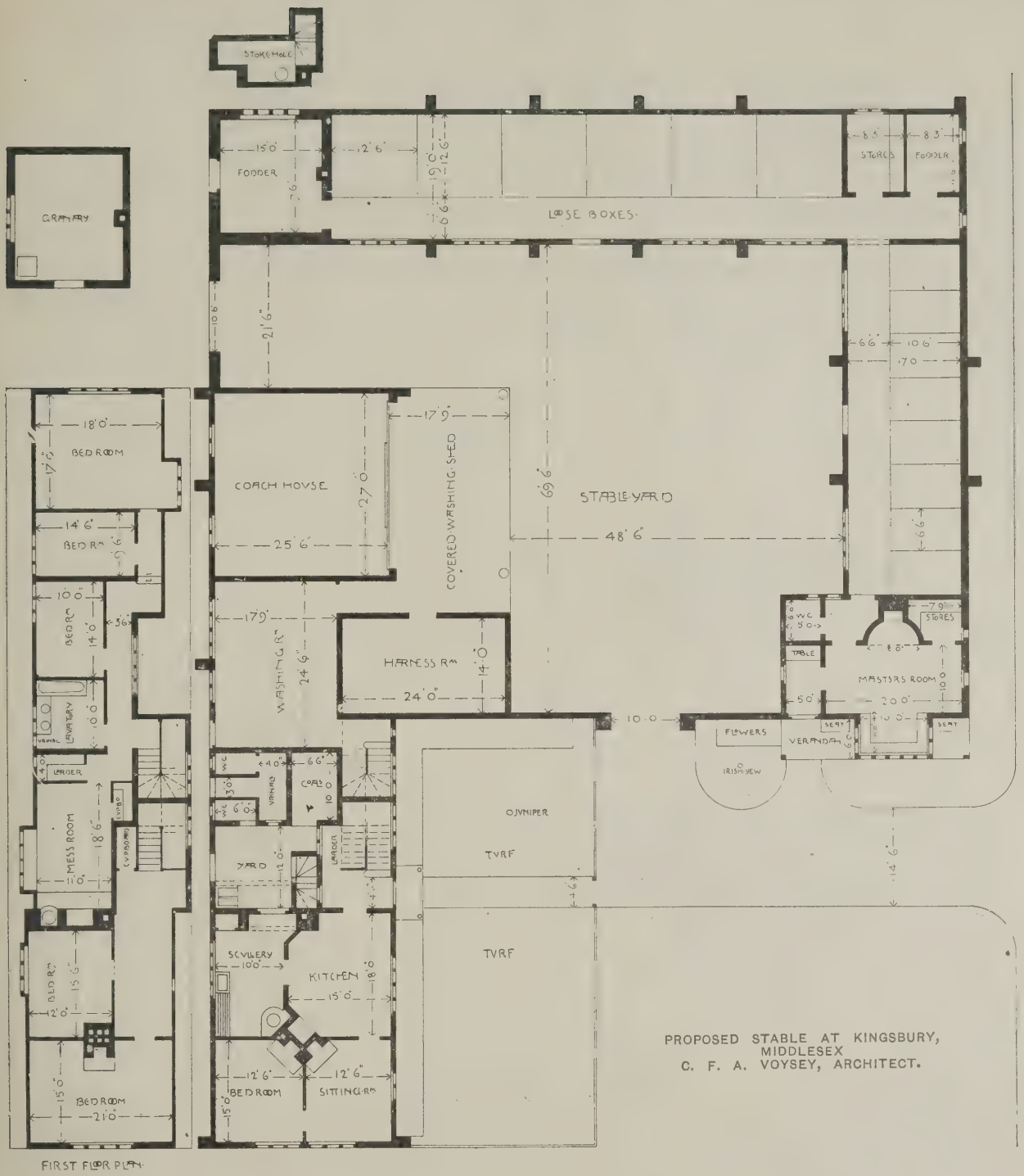




SOUTH WEST ELEVATION



PROPOSED STABLE AT KINGSBURY, MIDDLESEX. C. F. A. VOYSEY, ARCHITECT.



attempt to re-house the people who had been ejected from the demolished areas, the new dwellings being, as a rule, such as only well-to-do artisans, Corporation officials, clerks, shopkeepers or professional men could afford to rent. . . .

So serious was the state of things brought about by the Corporation's pulling down the poorest class of houses without making any provision for the poorest class of people that in 1890 the Glasgow Workmen's Dwellings Company, Ltd., was formed by certain prominent citizens, with a capital of about £40,000, not with the idea of curing the evil with such very modest means but in the hope of affording some "object-lessons" alike in the building of "simple, sound houses" capable of being let at minimum rents and in improving the structure and the management of dilapidated slums so as to convert them into habitable and remunerative dwellings, instead of demolishing them altogether. . . . In any case the direct result of the policy carried out by the Glasgow Corporation in regard to the housing question has been to check the further development of local private enterprise along the lines laid down by the Workmen's Dwellings Co. Professor Smart says of that company: "It has built to the limit of its capital. It could raise more capital, or it could start other companies. But it stays its hand for two very good reasons—(1) because it cannot afford to rent at cost; and (2) because, even if it were willing to, there is no use in private people losing money to do what the Corporation is going to do presumably without losing money." . . . One feels, indeed, that the Glasgow Workmen's Dwellings Co. has really done more in its way towards the solution of the real housing problem than the Glasgow Corporation with all the funds at their command.

[An illustrated article on the Company's work appeared in the BUILDERS' JOURNAL for October 9th, 1901.]

The Stable by Mr. Voysey at Kingsbury, Middlesex, shown by the accompanying illustrations, is proposed to be built at "The Cottage," for Mr. L. Mieville. It will be in brick, rough-cast, with hand-made red tiles on the roofs and oak joinery throughout. The paving will be in yellow brick, and all modern metal castings will be carefully avoided.

"Cisterns and Tanks."—In the review of this book published in our last issue it was stated that copies may be obtained from the author, Professor Adams, at 60, Victoria Street, E.C. The address should have been given as 60, *Queen* Victoria Street, E.C.

PNEUMATIC DRAINAGE.

The new French System at Stansted.

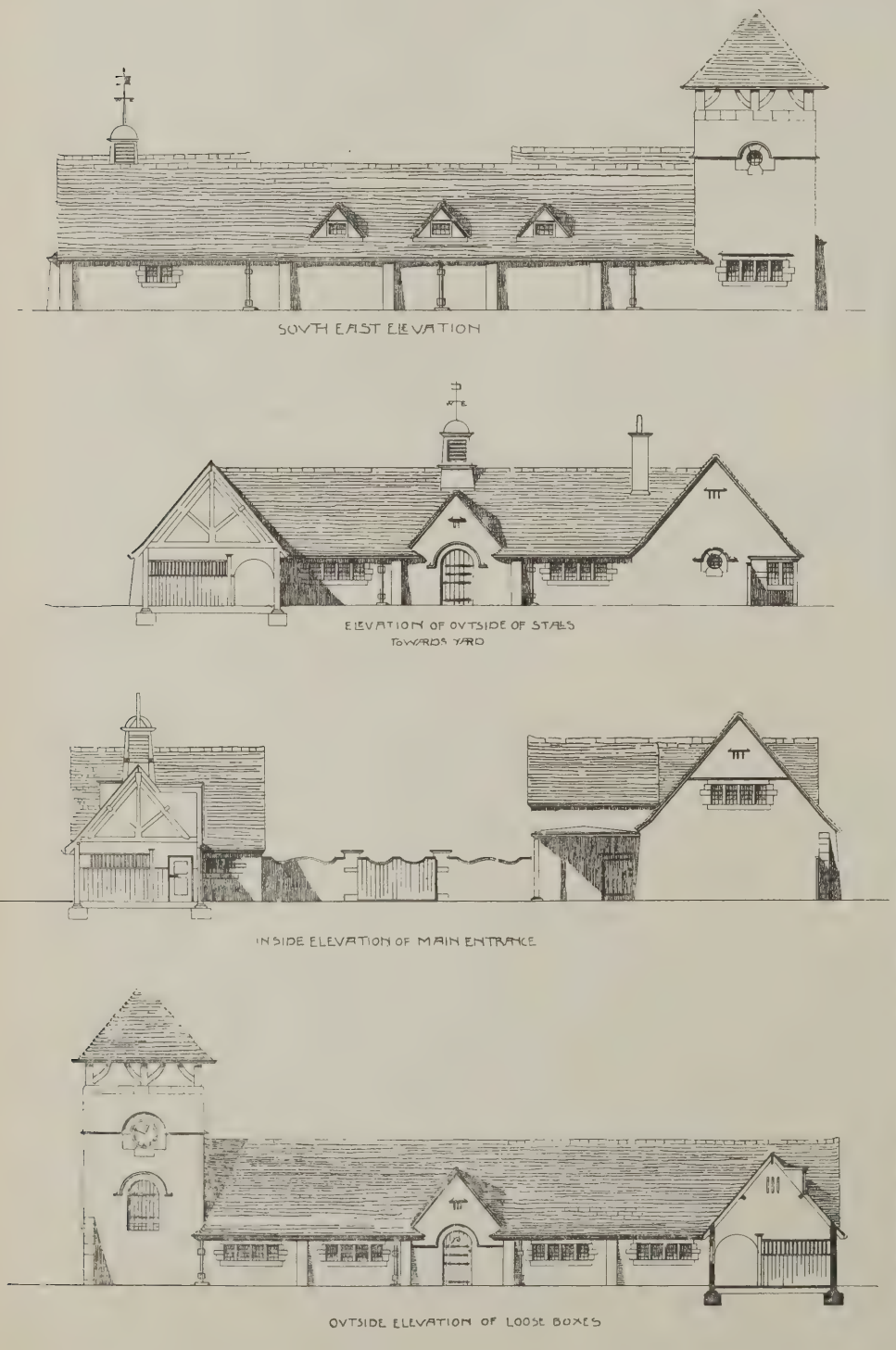
AN installation of pneumatic drainage has just been completed at Stansted, Essex, the first of its kind in this country. The system is a French one for draining by suction districts which cannot be drained by gravitation. At Stansted the district is very hilly, and the drainage of the lower portion of the parish has given a lot of trouble to the local sanitary authority for a long time past. The Local Government Board, however, would not sanction a loan upon this pneumatic system of drainage until they had seen it in operation for two years, so in order to introduce it into this country and get the Local Government Board's approval the Liernur English Syndicate agreed to bear the whole of the cost of laying down the installation and to work it for two years on the understanding that if at the end of that time it gave satisfaction the Stansted Council would take it over at a figure agreed upon, which is less than the cost price.

Mr. Liernur explained to those present at the recent opening ceremony that from the central pumping station were laid cast-iron pipes leading to the streets drained. A vacuum was created by means of an air-pump, and the whole of the sewage was brought along the pipes by suction to the station without the addition of any flushing water. By this suction they got a velocity in their sewers of from 12ft. to 20ft. per second, instead of 2ft. or 3ft. per second as was the case in ordinary gravitation. The system had very great advantages, inasmuch as stoppages were absolutely impossible, and it enabled them to do without manholes, inspection chambers, flushing gulleys, &c., which resulted in great economy in construction and in working. The population of that portion of Stansted drained by this system was between 750 and 800, and the whole time taken in conveying the sewage from the syphons to the pumping station was only ten minutes.

In reply to Sir James Blyth, Mr. Liernur said the quantity of sewage dealt with at Stansted was from 7 gals. to 10 gals. per head of population per day, but apart from this they had a quantity of industrial effluent from the Mica Insulator Factory and the brewery. Further questioned, Mr. Liernur said they took in no storm water; it was dealt with by a separate sewer. The house traps were emptied once a day. They were not ordinary traps, but overflow syphons which were emptied automatically. The sewage all went by gravitation to a certain point, whence it was brought on to the pumping station by suction and then pumped on to the land about 40ft. higher for irrigation purposes. The working cost of the scheme was only about 1s. per head of population per year.

At a luncheon which followed, Sir John Blyth said he understood that Trouville was the town in France where this novel system had been successfully put to the test, and he sincerely trusted that Stansted might prove to be the Trouville of England. By laying out this scheme within easy reach of London other reformers could inspect what they were doing and could follow the example; and he might add that any assistance he could render to the residents living in other parts to visit Stansted and inspect these works would be a duty and a pleasure to him.

Mr. E. T. Watts, the surveyor to the Council, who has superintended the work, said that when the scheme was first brought forward he regarded it somewhat timidly, thinking it was a very complicated one, but the more he looked into it the simpler it became. He found that the difficulties which at first presented themselves were only imaginary, and at last he was able to recommend his Council to adopt it. Now that they had adopted it he felt he must do all he could to further it. There were many of his colleagues present who suffered very much from dealing with sewage of unknown quantities when there were heavy storms. In the Liernur system that difficulty was entirely done away with. They only admitted and dealt with that sewage which they wanted to deal with. Surface water was allowed to go into the brooks. The more they could diminish the quantity of sewage the less they had to deal with at the other end. From careful investigations he had made he found that the sewage at Stansted did not amount to 10 gals. per head per day, and when they got the people to realise what a system they had the amount they would have to deal with would be still less. He might add that all the gentlemen who were upon the English Syndicate were Englishmen, and the material used had all been supplied by English workmen.



PROPOSED STABLE AT KINGSBURY, MIDDLESEX. C. F. A. VOYSEY, ARCHITECT.

The new St. Peter's Church at Ilfracombe is being erected at a cost of £6,000, in Highfield Road. It will be built with pink limestone facings, with Bath stone quoins, all the windows, doors, jambs and string-courses, inside and out, being of Corsham Down stone. The inside facings are to be of dressed ashlar from Hangman, Combemartin, the floors being of wood blocks, with tiled aisles. The roofs are to be open in construction and covered with red tiles. The plan of the new church shows a broad nave, 84ft. by 24ft., chancel 34ft. 6in. by 21ft. 6in., chapel 17ft. by 10ft. 3in., two transepts 35ft. by 15ft. each, two aisles 48ft. by 10ft. each, giving seating accommodation for about 700 persons. Mr. G. H. Fellowes Prynne is the architect and Mr. Pickett the builder.

Views and Reviews.

The British School at Rome.

In the spring of 1901 the newly-formed British School began its work at Rome, and this volume is the first of its publications. The School is similar to that at Athens—indeed, it is the intention to place the two Schools under one joint committee. The first and chief of the two monographs which make up this volume deals with the church of S. Maria Antiqua, and is written by Mr. Rushforth, the director of the School. The space between the vast brick structure known as the Temple of Augustus and the steep north-west face of the Palatine hill is filled up by a building which after sundry uses became converted into the church of S. Maria at some time after the middle of the sixth century; but suggestive though it may be of structural developments and changes in planning, its main interest lies in the paintings with which it was decorated. The history of the seventh and eighth centuries in Rome is very meagre, and this church is valuable as revealing the system on which the decorations were carried out, and thus "the interests and tendencies of the Romans of those days, their standards of art and the kind of pictures they were accustomed to see, their dress and personal appearance, their manner of burial, have been brought home to us more vividly than they had ever been previously." The church was abandoned when, in 847, Rome suffered from an earthquake of much severity, but it was the fire of 1084, made by the incoming Normans, that effected its final burial.

S. Maria was not a church of importance and consequently there would be no special Greek artists from Constantinople to decorate it with mosaics. Greek indeed its wall paintings are—or Byzantine as we chose to call them—but they have a local feeling which is due to a transplantation and a fresh artistic impulse. The church was decorated in every part—its outer hall, its inner cloistered court, its corridors—and though it seems necessary that the building should have been roofed in, if this had been so it is difficult to imagine how it could have been lighted. The paintings themselves depict, of course, various saints and martyrs, and Biblical events; and remembering the customs of the early artists, it is not surprising to notice that Noah and the aged Jacob are fully draped in the classical style, while youthful and inferior persons have a short tunic and hose with a red stripe down the front of each leg.

Adjoining the church proper is the Chapel of the Forty Martyrs, on the walls of which are represented the forty men who endured exposure in an Armenian lake, not, however, according to the legend, surrounded by ice, but standing up to their knees in water, with one member (whose courage failed him) stepping out into a tent, though the legend says it was a warm bath! This, however, is common with the period.

Mr. Rushforth describes all the paintings in detail, but it is much to be regretted that no illustrations of them could be given: and though this is due to the fact that the Italian authorities preclude such publication until the official account has been issued, it would perhaps have been better to wait till this had been done.

The second part of the volume, by Mr. Ashby, possesses, as observed in the preface, "an importance of its own as a contribution to the task of reconstructing the Roman Campagna as it was before desolation and silence fell upon it": its interest, however, is in its detail, which cannot here be gone into.

On the whole we must congratulate the School for having issued so valuable a book, and also the publishers for having produced it so admirably, the printing, paper and type being excellent.

"Papers of the British School at Rome." Vol. I. London: Macmillan & Co., Ltd.

The Egyptian.

There can be no "review" of a book like this. It is an illustrated statement of excavations made under the direction of the greatest living Egyptologist, to whose patient and wonderfully discriminating researches we are indebted for so much of our knowledge of ancient Egypt; and the book being such a statement, one can do no better than give a brief account of the facts it sets forth. This twenty-second memoir, then, of the Egypt Exploration Fund completes the account of the objects found in the Royal Tombs of the earliest dynasties and covers nearly all that has been found in the Temenos of Osiris. Professor Petrie has had the same gang of men and boys as have excavated for him during many years—indeed, these have formed a nucleus for all other recent excavators; but it is found necessary to be continually weeding out the old hands, because the Egyptian always becomes spoiled by prosperity. The work of directing such excavations as these in Egypt not only requires vast and precise knowledge, but entails a great amount of account keeping, for the season's work involves about 40,000 entries of small sums! Notwithstanding this, however, Professor Petrie has managed to draw thirty-seven of the plates and take all the photographs that illustrate this memoir; and his wife has made drawings of nearly four hundred of the flints discovered, with all their facets and broken outline—a most tedious task—as well as facsimile copies of inscriptions; Mr. Arthur Weigall having superintended the men at the great southern tombs and Mr. A. St. G. Caulfeild those at the Sety temple, while Mr. Laurence Christie has carried out some of the copying work.

These the workers: we may now deal with the work. First, then, at the Royal Tombs hundreds of fragments of pottery jars were found, on which were written, in ink with a brush, inscriptions of two formulæ, one a king's, and the other his queen's; and these are the oldest hieroglyphic inscriptions known, for they probably date half-way back in the dynasty before Mena, that is, nearly 5,000 years before Christ. To the other discoveries in these Royal Tombs we need not now refer, for it will suffice to say that they chiefly enable the ten early kings who reigned at Abydos to be restored. The Temenos of Osiris is more to our purpose. We may read its history like one of our own churches, of which we speak that it was founded before the Conqueror, and added to by this man, with a tower by this prelate, and so on. Thus, then, the history of this ancient relic of Egypt:—On the sandy edge of the desert a temple of Osiris stood presumably before the First Dynasty, and around it sprang up a town which was afterwards walled in. Then in the Eleventh Dynasty Antef V. rebuilt the temple with octagonal columns of limestone; in the following Dynasty many monuments were added; in the next, Sebekhotep III. built a black granite gateway; in the Eighteenth Dynasty Tahutmes III. built a massive inner wall, more than 20ft. thick, with a great red granite pylon on the desert side; and so on through the following Dynasties. Thus the history unfolds itself, though the temple site has not been cleared below the foundations of the Eighteenth Dynasty, the work being rendered very difficult owing to the rising of the Nile. Outside the temple not a trace of any building of the early time was found except mud brick houses, and the excavators have to deal with what was a series of towns piled up in strata between 6in. and 1ft. thick. In these strata many objects have been found, but it is not within our scope to deal with them.

The Osiris temple consists of two chief parts, a square building of which nothing but foundations and loose blocks remain, and a second part having still the lower few feet of the walls of two pillared halls and some chambers. Many of the fragments of columns, granite sculptures and other objects found have been sent to the Cairo Museum, but a large lintel of Tahutmes III. still in a bright condition of colouring was sent to the Boston Museum.

The most unexpected result of the year's work was the discovery of a high style of limestone sculpture under the reign of Nectanebo I. which preserves the traditions of the Eighteenth Dynasty almost unchanged and shows no trace whatever of the surrounding influences of Greek art.

On the south side of the valley which leads up to the Royal Tombs a spur of the desert runs forward between the Temenos of Osiris and the great temples of the Nineteenth Dynasty. The whole surface of this hill, for about half a mile back, is honeycombed with tombs. Those near the desert edge are so close together, and have been so completely wrecked by Mariette's plunderers, that Professor Petrie and his co-workers have not attempted to do anything with them; but in other parts they have made considerable finds, dealt with in chapter iv. of this memoir.

It is, of course, impossible to adequately set forth in words what the many fragments are like, but the memoir is so fully and carefully illustrated—in fact, the letterpress is merely supplementary to the plates—that it forms a most important link in this chain of Egyptian history now being pieced together under such diligent hands. There are, however, many links missing, and it is to find these that the Egypt Exploration Fund continues to devote itself.

"Abydos: Part I., 1902," by W. M. Flinders Petrie, with a chapter by A. E. Weigall. London: Egypt Exploration Fund, 37, Great Russell Square, W.C.

Mitchell's Building Construction.

A new edition of the Elementary Stage of Mitchell's "Building Construction" has just been published. It is a very great improvement on former editions. Many new illustrations are added and the text has been revised and considerably enlarged. We are glad to see that Mr. Mitchell has given more reasons for the forms usually adopted in building construction, as this is the common stumbling block of students, so that if they can only clearly understand the why and wherefore of things their interest is awakened and original thought is encouraged. We should like, however, to see some further explanation of the reason for using headers in footings on p. 33. Of course the best instruction is to be found in actual building works, on which the student should spend most of his time for study, but a book such as this is of inestimable use as a memorandum, and as suggesting objects for study and reasons for their forms. Mitchell's "Building Construction" is undoubtedly the best work a student can obtain on elementary construction. The illustrations now number more than a thousand, and are most clearly drawn. The price is wonderfully low.

"Building Construction and Drawing: First Stage or Elementary Course," by Charles F. Mitchell and George A. Mitchell. London: B. T. Batsford, 94, High Holborn, W.C. Price 3s.

At the Woodbury Gallery, 37, New Bond Street, W., the members of the Guild of Handicraft will open an exhibition on October 13th. Thanks to Mr. C. R. Ashbee, the Guild has made much progress during the last few years, and the public will doubtless be glad of the opportunity to see a collection of its work. The exhibition will include examples of gold and silver work, jewellery, enamels, furniture, book-bindings, woodcuts, pieces of fine smithing and casting, electric lights, &c.

Surveying & Sanitation.

Old Drains and Water Tests.—At the annual meeting of the Sanitary Inspectors' Association, held on Saturday night, the chairman of Council, Mr. W. W. Wilkinson, announced that the Council had that day discussed a matter which all sanitary inspectors must regard as of serious importance. In an action brought by a local authority against a metropolitan dwellings company for a contravention of the law, the principal witness for the defendant, Dr. Wynter Blyth, in giving as his opinion that it was unreasonable to expect an old drain to stand the water test, stated that he was the chairman of the Council of the Sanitary Institute, this statement from one holding so prominent a position having so much weight with the magistrate that he dismissed the case. The Council strongly protested against this, and passed a resolution urging the Sanitary Institute to dissociate itself from any implied concurrence in this statement.

Oiling Roads.—The use of petroleum to lay the dust and consolidate roads was first tried at Baku, the source of supply of the Russian kerosine. Baku is situated on an arid tract of land in the Apcheron Peninsula, upon the shores of the Caspian Sea, and was until recently without any proper water-supply, as there is no river in its immediate neighbourhood. The Caspian is much salter than the ocean, and when its water was used for street watering there was too great a deposit of salt in the streets. Fresh water was too expensive for the purpose, as the potable supply had to be brought in carts, from some distance, and although there were some 200 miles of petroleum pipes in the town and neighbourhood there were no water pipes. Crude petroleum at the period in question was worth two or three annas per ton, but it was two dangerous a liquid for street watering, as it contained volatile constituents that would ignite readily; it had also a strong and disagreeable smell. The liquid used was *astatki*, or the residue of the stills, which was also used as fuel in boilers. This residue is a thickish dark-coloured oil, having a very faint smell; its value at the time of the experiment was about 2s. per ton, and it was applied to a road whose surface was of coarse sand which it tended to consolidate. This road ran along by the harbour, and did not appear to be of a nature to bear sweeping; the oil therefore effectually laid the dust, and is said to have effectually resisted the rain of the winter season.

Engineering Notes.

Richmond Bridge is so inadequate that it is proposed to build a new bridge, either on its site or elsewhere.

Electric Railways at Stourbridge have been constructed. The lines will serve as feeders of the existing light railways of the Dudley, Stourbridge and District Electric Traction Company, which now owns between twenty and thirty miles of local tramways.

The Withington New Sanatorium, near Manchester, has been supplied by Messrs. E. H. Shorland & Brother, of Manchester, with their patent double-fronted Manchester stoves in glazed faïence and with descending smoke flues, and patent Manchester grates with faïence chimney-pieces.

A new Bridge at Hull was opened last week connecting the eastern portion of the city with the west, over the River Hull. The bridge is a bascule one, constructed in three spans; the central opening through which ships will pass has a span of 51ft., and the two side spans of 19ft. each. The bridge is constructed mainly of steel. The cost has been about £33,000.

Swansea New Docks.—A new lock is being constructed at the South Dock which will provide accommodation for larger vessels than formerly. The cost of the scheme has been £100,000.

Messrs. Andrew Handyside & Co., Ltd., steel bridge, roof and structure makers, of Derby, have secured the contract for the extension of Messrs. Leys Malleable Casting Works, Derby.

Garden Cities Engineering.—The Civil and Mechanical Engineers' Society held a meeting last week, when Mr. Ebenezer Howard read a paper on "Some Engineering Features of the Garden City Scheme." Describing an ideal garden city as one capable of providing for a population of about 30,000 persons with an acreage of about 5,000 in the city proper, Mr. Howard drew attention to plans providing for a central garden and circular roads extending to about a mile and a half in circumference. For this population, water, sewage and electricity for both lighting and power purposes could easily be arranged, and all these advantages, adding telephone communication, could be supplied with a minimum of local rating. The scheme was one presenting no engineering difficulties, and was, he claimed, one which would solve the problem of placing the town population amid rural surroundings, and with all the advantages of the latter. A discussion followed, in the course of which the economic rather than the engineering difficulties were referred to. In reply, Mr. Howard pointed to the model towns erected by the Messrs. Lever, Cadbury and others as practical evidence of the feasibility of his scheme.

Masters and Men.

Labour in the Colonies.—The October Circulars of the Emigrants' Information Office, 31, Broadway, Westminster, S.W., show the present prospects of emigration. In Canada work was plentiful during the summer both in the agricultural and manufacturing industries, but it is too late for emigrants to go there this year, unless they go to friends or have means of their own. In New South Wales, the building trade at Sydney continues busy, and there has been a demand for skilled plumbers, but all other trades are depressed. Country districts are suffering most from the severe drought. In Victoria there is no general demand for more labour, and many men are out of work. No large public works are being proposed by Government which might provide employment. The drought has long pressed heavily on large portions of the State, but useful rains have lately fallen. In South Australia the chief industries are connected with mining, farming and manufacturing, but there is no demand for more labour at the present time. In the north of Queensland there is a slight demand for general labourers; in the central districts there is practically no demand for anyone; and in the south there is a good demand for general labourers only. In Western Australia there is ample supply of men in the building and other trades at Fremantle, Coolgardie, Albany and other towns, but there is a demand for them in one or two small places, as Menzies and Northam. In New Zealand there is a good opening for a limited number of mechanics, but not for general labourers; passages at reduced rates are given to persons possessing fixed incomes, or a little capital. In Cape Colony there is no demand for more mechanics. No one is now allowed to land in Natal without a permit. This must be applied for personally at the Permit Office, 47, Victoria Street, London, S.W. The applicant must possess £100, or prove that he is in a position to maintain himself in South Africa. There is now no special demand for more artisans, a large number of carpenters and others in the building trades having lately arrived, but skilled men can find work. Permits are required by those going to the Transvaal and the Orange River Colony. These will not be valid unless endorsed by the representatives of those Colonies at the port of disembarkation. There is a fair demand on the Rand for really first-class mechanics in the building trades at an average wage of a little more than £1 a day; but the market is limited, and emigrants must remember that the cost of living is at least double that in England, rent being especially high.

Builders' Notes.

Mr. E. Carpenter has been appointed clerk of the works at the Royal Courts of Justice in succession to Mr. R. Phillips, recently transferred to Buckingham Palace.

Harrogate Building Trades Exchange.—The members of the various businesses connected with the building trades of Harrogate and district have secured conveniently situated rooms in the Central Arcade, Chapel Street, on a lease, and have established a Building Trades' Exchange and Club, which was opened last Saturday week. One of the principal objects has been to have a suitable meeting-place for the members to have business and social intercourse, and the club is to be run on similar lines to the one at Halifax. The suite includes large billiard-room, smoke-room, reading- and committee-rooms, and stewards' rooms.

Hamilton By-laws.—A special meeting of the Town Council was held last week to consider a motion relating to a building difficulty which has been a subject of controversy for some time, and which has wellnigh brought building operations within the burgh to a deadlock. The motion set forth "that, considering the effect of the resolution of Town Council of date 12th August last to enforce clause 12 of schedule 4 of the Burgh Police (Scotland) Act, 1892, it be a recommendation to the Dean of Guild Court to take the necessary steps to have the said clause amended so as to permit them to grant linings for the erection of buildings where the thickness of walls on the outside or house side of the chimneys be not less than 4½in., and to make regulations thereanent." After considerable discussion, it was agreed to recommend the Dean of Guild Court to apply to the sheriff for an alteration of the regulations so as to ensure that the buildings in the case of brick be not less than 4½in. and of stone 6in.

Registration of Plumbers.—An influential gathering of gentlemen interested in the promotion of the public health by securing good plumbing work was held last week at the Fishmongers' Hall, London Bridge, under the auspices of the Worshipful Company of Plumbers. Baillie Crawford, of Glasgow, the Warden of the Company, presided. Sir James Crichton-Browne expressed his entire appreciation of the labours of the Plumbers' Company to secure good and efficient plumbing, remarking that nowadays the plumbers' pipes ran beneath a house like a kind of macaroni dressing. Referring to the efforts of the medical profession to destroy the tuberculosis bacillus, Sir James reminded those present that bad plumbing, damp-houses and mildew were active agents in the spread of the dread disease. Mr. Gomme, alluding to the by-laws which the County Council had made on the subject, said that those laws could only be properly carried out by a registered plumber. The Council did not say that they must be so carried out by a registered man, but he was sure that they could only be carried out by a thorough and efficient workman.

Bricks and Mortar.

Aphorism for the Week.

Exclusive of the abstract sciences, the largest and worthiest portion of our knowledge consists of aphorisms, and the greatest and best of men is but an aphorism.—COLERIDGE.

Our Plates. THE garden-house at Walmer Lodge, Deal, was built for Mr. Albert Ochs, and is situated at the end of a long pergola walk, part of which is shown in our illustration. The brick walls are covered with rough-cast, and the facings and columns are of freestone.—The pupil teachers' centre in Offord Road, N., has been erected by the School Board for London from the designs of their architect, Mr. T. J. Bailey, F.R.I.B.A., and is now in full operation. The accommodation is for 312 mixed students, and consists, on the lower floor, of ample covered playgrounds, luncheon-room, kitchen, &c. On the ground-floor are four classrooms, an assembly-hall, lavatory,



PUPIL TEACHERS' SCHOOL, OFFORD ROAD, BARNSBURY, N.
T. J. BAILEY, F.R.I.B.A., ARCHITECT.

cloakrooms, &c; teachers' rooms being placed on the mezzanine floors. On the first floor are four classrooms, intended gymnasium, dressing-room, cloaks, &c.; and on the upper or second floor drawing class-room, chemical and physical laboratory, lecture- and modelling-rooms, &c The building is lighted by electric current, and is warmed by low-pressure hot-water apparatus. The elevation is of red-brick facings, with terra-cotta dressings. The drawing was exhibited in the Royal Academy Exhibition.—The offices in Grenade Street are now being erected by Messrs. Clark, Williams & Co., ship joiners and timber merchants, to take the place of the older offices and board-room at the rear of the site, hereafter to be pulled down. The work is being carried out by the firm, all the woodwork being prepared in the shops on the premises. There will be no plastering in the interior, the chimney breasts being built with facings of enamelled and salt-glazed bricks, all ceilings, partitions, &c., being in exposed and wrought wood-framing. The board-room at the back is lit solely by a lantern in timber framing in which panels of Oregon pine take the place of plaster fillings. The walls of this room will be panelled up to the spring of the roof, the fireplace recess being finished in green enamel tiles and bricks. Mr. Arthur T. Bolton, of 2, The Sanctuary, S.W., is the architect.

The Indian Coronation Casket. THE Coronation casket which has been presented by the city of Madras to the King Emperor takes the form of the famous Padu Mandapam, in Madura, which was erected by King Tirumalai as a guest house for the god Siva, who agreed to pay an annual visit to the place provided a suitable building were erected for his reception. The facade of the building is covered with the most wonderfully-executed groups of warriors, horses, lions, elephants and tigers. These are beautifully reproduced in the silver casket. The dimensions of the casket are: height 20in., length 17in., breadth 8in. It is surmounted by three silver and gilt gopurams, the centre one being higher and more imposing than the others. Running round the base of the building is a fantastic scroll with bhoots in pairs over a floral scroll. Ancient warriors are embossed in panels below the gopurams. The four corners of the buildings are adorned with Yalis, or extinct animals. The base on which the casket stands is of carved ebony. There are six panels in front and an equal number behind, flanked by three panels on each side. The ebony panels are relieved by silver Ghandarvas, with vinas in high relief. The whole is supported by eight ancient winged war horses in silver. The casket, which was manufactured in six weeks by Messrs. Framjee P. Bhumgara, cost Rs.5·500.

Netley Hospital. WHEN the military commission which has been entrusted with the reorganisation of Netley Hospital has finished its labours in reforming the medical side of the institution, it may be taken for granted that the work of remodelling the building itself will be taken in hand. It is now generally admitted that Netley is in an insanitary condition, and that medical structural alterations are needed to bring it into line with modern medical and nursing requirements. The broad passages, which run the length of the building, and the spacious wards, are excellent from the point of view of ventilation, but the windy corridors facilitate the carrying of microbes from one part of the building to another, and the size of the wards makes the isolation of infectious cases almost impossible. When the new Alexandra Hospital, to be built on Portsdown Hill, near Portsmouth, is completed, the pressure on Netley will be removed, and the authorities will be able to carry out the much-needed reforms.

Oundle Church. OUNDLE CHURCH stands well in the centre of the town, and is of more interest externally than internally. Its chief features are the square tower with tall crocheted spire. A sketch of the south porch of this tower is given on this page. The lectern is interesting, as it is said to have been found in the river bed at Fotheringhay, about three miles distant.

Liverpool Cathedral. THE Petition Committee point out that although 1,000 guineas are being paid to the advisory architects for their opinion (which is subservient to that of the cathedral executive committee) only 1,500 guineas are being paid to competing architects for five designs for a cathedral to cost £1,000,000 (representing £5,000,000 worth of architects' services, the scale charge for which would be about £125,000); that even after all this ill-paid skill and labour have been expended by the five selected architects, the cathedral executive committee are at liberty to invite and adopt the designs of other architects who have not incurred the expense and trouble of the first competition; and that in consequence of all these unsatisfactory conditions, it seems quite improbable that the best possible design for a cathedral will be forthcoming.

The Rossetti Window. The "Rossetti Window" in Birchington Church, which, as we reported last week, was damaged recently by a burglar, was placed there in 1884. It was the work of Mr. Frederick Shields, and was executed by Heaton, Butler & Bayne. The window is of two lights, one containing an adaptation by Mr. Shields of Rossetti's design "The Passover," which was a commission from Ruskin in 1855-6 and was exhibited at the Royal Academy in 1883. The original intention was to use the "Christ in the House of Simon the Pharisee" for this purpose, but the church authorities objected on the curious ground that the "incident was not in Scripture." The subject of the design, by Mr. Shields himself, which fills the other light is



DRAWN BY HEATON COMYN, A.R.I.B.A.

the "Healing of the Blind Man." The limitations as to the subjects of stained glass imposed by the clergy of Birchington are not insisted on in a certain church in Norfolk, which possesses a window showing a full-length and realistically-treated portrait of a lady painting at an easel.

St. Cleer Church.

The parish church of St. Cleer has a granite tower 97ft. high, erected at a later date than the church, but corresponding with the south aisle in style of architecture. The church consists of a nave, north and south aisles and a chancel. The north aisle is the oldest part of the building. At the north-west corner of this aisle is a Norman doorway. The windows of the aisle are modern, and differ from each other in pattern, The pillars and arches which separate it from the nave are of local stone. Those which separate the south aisle from the nave are much more elaborate, and are of Polyphant stone. They are quite unique, and there is nothing to equal them in any of the neighbouring churches. The chancel is very plain, and it is proposed to decorate it. On the walls are several texts, on wood, which are very rarely found in churches at the present time, and are really no ornament, and, with the seats, will probably soon disappear in the proposed scheme of restoration. On the floors are indications that brasses were once there and have been removed, and there are no monuments previous to the reformation. The church was dedicated to St. Clarus, a bishop who died A.D. 874, and of whom there is a representation in one of the stained-glass windows of the church of St. Neot's. The cost of the restoration to be first attempted is about £1,300.

West Dereham Church.

The parish church of St. Andrew, West Dereham, the nave of which was re-opened for divine service recently, after restoration, is a building which possesses many points of peculiar interest. The ancient round tower, of unusually large dimension, is supposed to have been one-third higher than the present structure, which may account for the octagonal capping of brick, evidently of a much later period, and supplying the place of the lost portions of the circular base. The tracery of the four windows of the nave is remarkably fine, but much worn with age, and to some extent damaged by the fall of the roof about a year and a half ago. There is a fine chancel arch in the Perpendicular style. There are costly monuments in the chancel. The nave through the falling of the roofs had become a complete wreck. The ancient roof, which was composed of very roughly hewn oak, was formerly covered with thatch. This, within the memory of some of the present inhabitants of the parish, was replaced by tiles of great weight, too heavy for the timber in its decayed state. It was found that the north wall had broken away extensively from the tower, and both the east and west gables required to be rebuilt. The floor of the nave was also in a very bad state, and interments appear to have been made very near the surface of the aisle—remains being found in some cases within 2ft. of the pavement. This has been remedied by a thick bed of concrete, upon which the present floor, of Staffordshire tiles and wood blocks, has been laid. A new roof in pitch-pine, the repair of the walls and gables, and the replastering of the nave, together with a new Porrit's stove, fixed in an underground chamber, form the extent of the present stage of the restoration of this fine old church. The work has been carried out by Mr. H. J. Green, of Norwich, as architect, and by Messrs. Tash & Langley as contractors.

A CHAIR OF CHICANERY.

IS ARCHITECTURE A TRADE?

IN a company of architects gathered in corporate capacity this question would be treated as an insult or as a bad joke. But while the architectural societies, as bodies corporate, would thus one and all answer the profane query by a contemptuous negative, and though the individual architect would invariably answer it to the same effect more or less indignantly, if deeds speak more loudly than words, the real reply of the profession generally is not quite so unanimous, after all, as the majority of its members would have the British public piously believe.

We will not name, in this connection, places and persons; but it has come to our knowledge that in a recent most important architectural competition in a certain North-country town the local firm of architects who, in conjunction with a City firm, pulled off the event, succeeded in eclipsing record; for while their less sophisticated local brother architects were toiling night after night, week in week out, preparing their competition drawings, this lucky firm gave out that they were not competing, and not only every member of their large staff of pupils and assistants but also one of the two active partners was quite unaware of anything to the contrary; so that when the local newspaper published the result of the competition, and congratuated the local firm of architects on having won by pure merit, thus honorably sustaining the architectural credit of their town, the astonishment with which the blushing recipients received this shower of press plaudits may be better imagined than described.

By what remarkable means had this odd result been achieved? It seems that the enterprising firm of City architects, having learnt from bitter experience the hopelessness of attempting to win competitions without wire-pulling, had succeeded in "doing a trade" with the senior partner of the local firm, for the attachment of the local firm's name to their plans. For reasons best known to himself the senior partner did not inform his junior or his staff. Hence the happy and quite unique denouement! In this case, who would say architecture was not a trade?

Into the muddy waters of such transactions honourable architects would not gain by probing, for the lessons in wire-pulling which they might learn would be such as they could not bring themselves to follow.

It may, however, be somewhat comforting to the clean-handed members of a noble profession to be assured that in the case here instanced, as in many not less dubious though less patent "deals," the deal as a trading transaction, and the design as an architectural achievement, are on a par, both belonging to that Sixth Order of Architecture, the *low* order for which the increasing familiarity of modern architects may breed, let us hope, a correspondingly growing contempt.

No one who has watched the development of the architectural profession throughout the latter half of the nineteenth century can fail to conclude that public competitions will become more and more, as the new century advances, the means of appointing architects to public works.

The modern student of architecture will search in vain the pages of Vitruvius or Chambers or Gwilt, and will ransack to no purpose the architectural libraries of Europe in quest of instruction in the science of wire-pulling and the tricks of trade.

If this science and these tricks must be known in order to pursue in this advanced state of society a successful career as an architect, ought not the Council of the Royal Institute of British Architects to forthwith establish at 9, Conduit Street a well-endowed handsomely-salaried Chair of Chicanery.

If the foregoing recent case of successful trading in architectural design were as exceptional in its character as in its accidental discovery, any such action by the R.I.B.A. would be premature at present. But the scandals of competitions seem to have reached an average of nearly 100 per cent.; so that immediate action of some kind seems needful to stem the flood of hypocrisy which threatens to overwhelm the few martyrs who still stubbornly stand for old-fashioned professional honour and rectitude in competition tournaments.

The tendency of the commercialism of these days is in architecture, as in other callings, to make the real expert the servant or slave of the clever exploiter.

But while the natural grouping of small industrial concerns under one big organisation undoubtedly economises the costs of production, and commends itself for many further reasons, that principle of grouping as applied to the architectural profession must have the effect of reducing the architect proper—the artist-engineer—to the role of a mere draughtsman of the great chief exploiter and wire-puller, who will, as this sort of process developes, become the bumptious boss of men superior to him in every endowment of mind and character, except in the science of chicane.

To institute at 9, Conduit Street a chair of chicane might have the effect of producing, in place of the present mixed crowd of honest martyrs and heyday hypocrites, a new school of architects versed in chicanery, taught to practice it, and making no bones about it.

Of course euphony would still claim consideration, and as "chicane chair" would be too much calling spade "spade," a less overt yet not inexpressive title might be "The Chair of *Savoir Faire*."

This would mean in effect the chair of *start fair*. All together! No martyrs, no hypocrites; but all chicaneers!

Cobwebs of scrupulousness, professional etiquette, honourable reserve and self-restraint, proper modesty, and all such hindrances to progress, swept aside; all decks cleared for action. Every architect going baldheaded and steel-hearted for all he is worth and for all the worth he can steal from his brother architects!

Lo! The vista of the trade of architecture through the twentieth century! The long-promised new style at last arrives! "The old order changeth." The five orders have gone. All hail to the sixth! All hail to the *Low Order*.

X.

Correspondence.

Langho Colony Competition.

To the Editor of THE BUILDERS' JOURNAL.

LONDON, E.C.

SIR,—In the notice of this competition in your issue for September 17th Mr. Dolby and myself are described as joint architects. This is incorrect. Mr. Dolby is co-author with myself in that he has acted as consulting engineer and prepared the schemes for heating, lighting and other engineering works, but as architect I only was responsible for the design.—Yours truly,

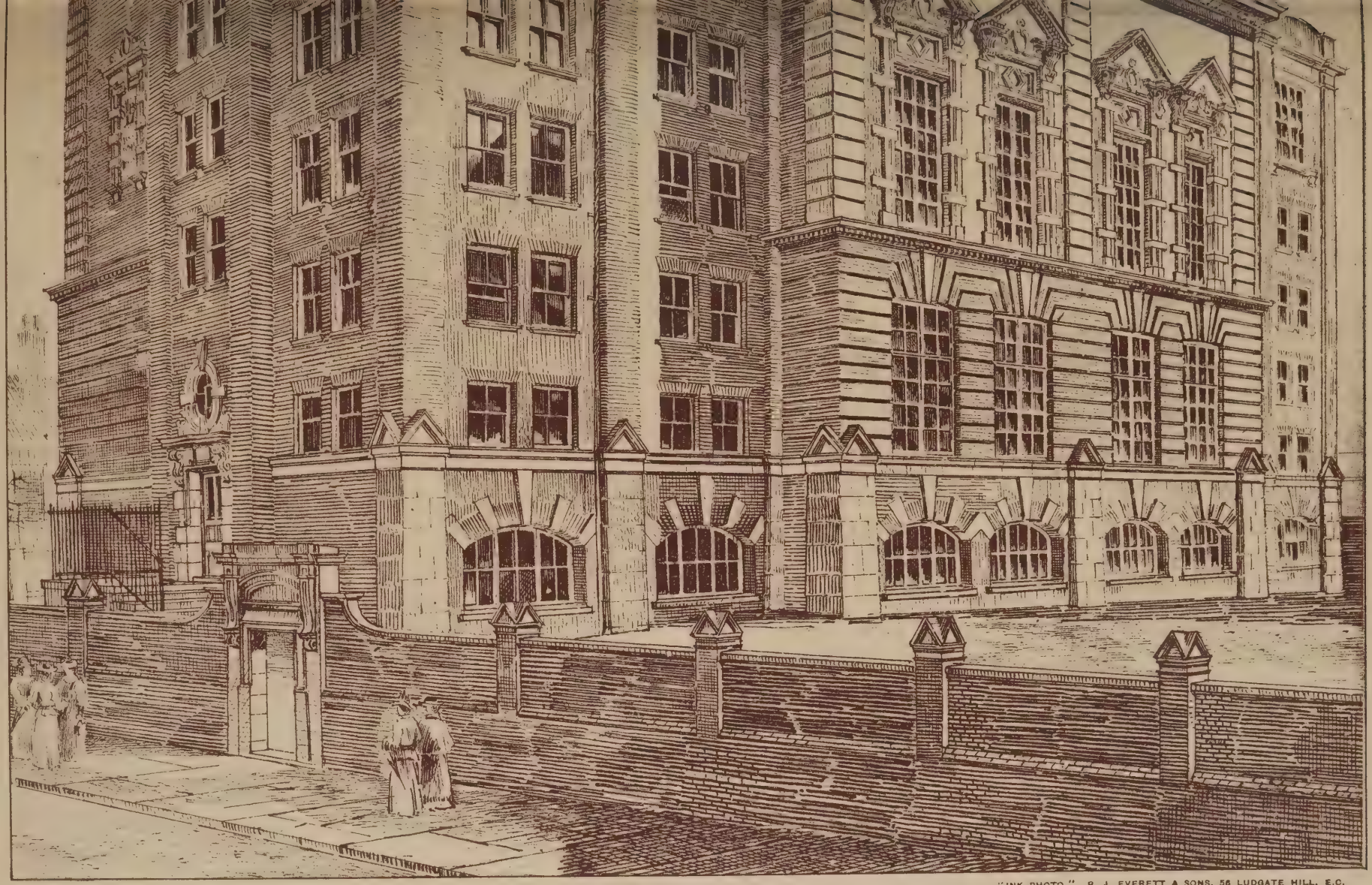
E. P. HOWARD, A.R.I.B.A.

"The Woodworker."—Vol. I. of this monthly publication has been issued by the publishers, Messrs. Dawbarn & Ward, Ltd., 6, Farringdon Avenue, E.C., price 3s. 6d. nett (postage 4d. extra). It contains practical illustrated articles on all kinds of woodwork.

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THE BUILDERS' JOURNAL AND ARCHITECTURAL RECORD,
Wednesday, October 8th, 1902.





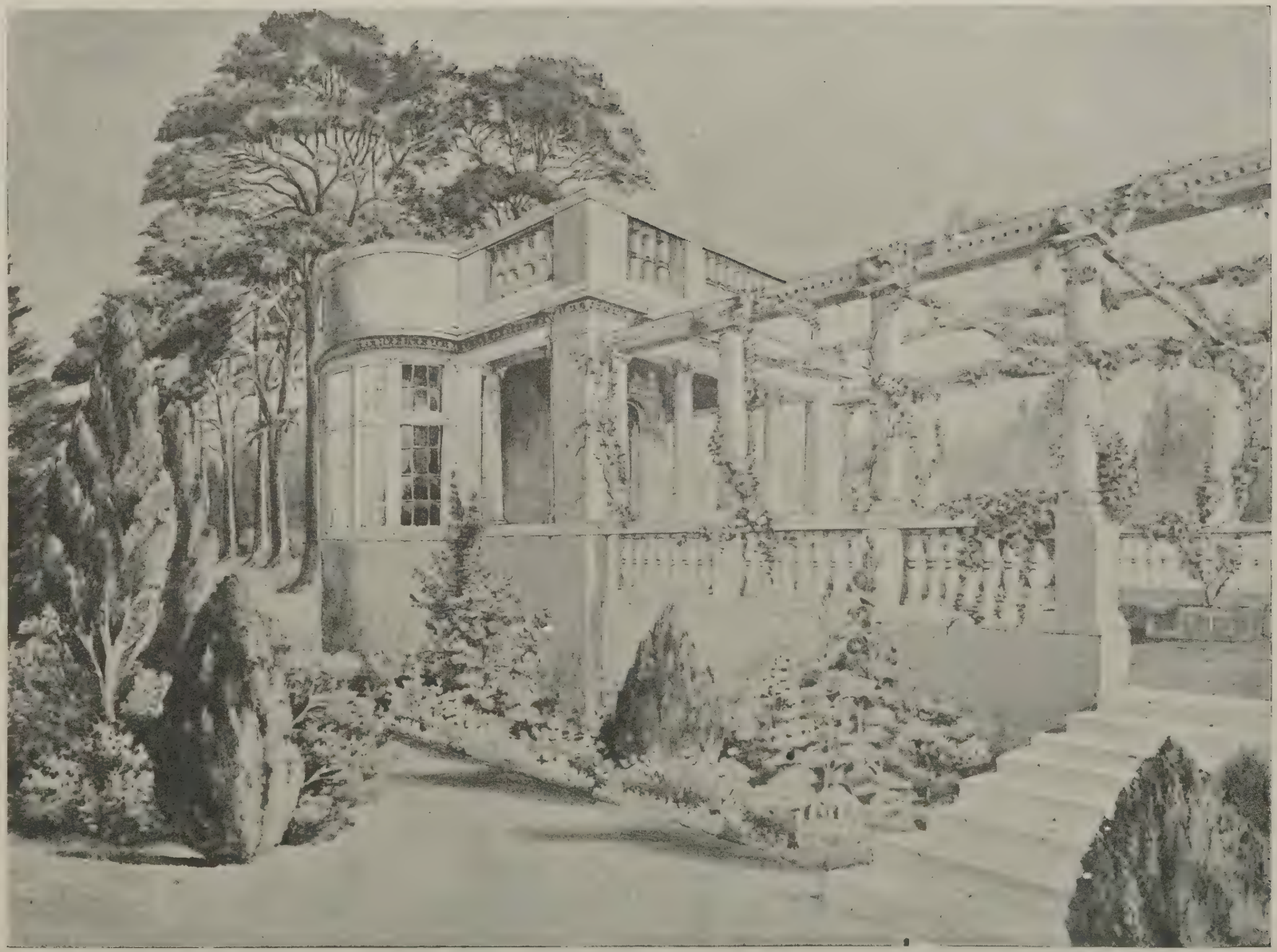
"INK-PHOTO." R. J. EVERETT & SONS, 56 LUDGATE HILL, E.C.

PUPIL-TEACHERS' SCHOOL, OFFORD ROAD, BARNSBURY, LONDON. N. THOMAS J. BAILEY, F.R.I.B.A., ARCHITECT.

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Supplement to
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GARDEN HOUSE AT WALMER LODGE, DEAL. THOMAS H. MAWSON, GARDEN ARCHITECT.

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THE ARCHITECTURAL ASSOCIATION.

President's Inaugural Address.

THE first sessional meeting of the Architectural Association was held on Friday evening at 9, Conduit Street, W., the chair being occupied by the new president, Mr. Henry T. Hare, F.R.I.B.A. Votes of thanks were accorded to the Royal Institute of British Architects for its annual contribution of £100 towards the expenses of the Association, and to Mr. H. Wilson for presenting a portfolio of drawings and designs by the late John Sedding. The following were then elected members:—Messrs. A. Bough, C. J. Graham and J. R. Sanders. A vote of thanks was accorded to the Bath Stone Firms, Ltd., for its courtesy on the occasion of the Association's visit to the Portland Quarries, after which the prizes were presented to the gentlemen named on p. 60 of our issue for September 10th last.

The president then delivered his inaugural address as follows:—

The first official duty your president is called upon to perform, that of addressing you at the opening of the session, is probably the most difficult and onerous of the many tasks which fall to his lot during his term of office. Time-honoured precedent, however, makes it impossible for him to avoid the duty, however much he might desire to do so, and it is a privilege not to be lightly set on one side. I therefore take up the burden, not so much in the hope that I may be able to say anything which has not been often and better said by my predecessors in the chair, but rather that I may give the necessary opening to what promises to be one of the most successful and important sessions which the Association has seen. What diffidence I may feel is dispelled by the testimony of your presence here to-night, which witnesses to the fact that this annual address is no mere formality. The responsibility, however, increases yearly, and expands as the work grows, and our interest in an engaging and delightful calling makes it well that we should thus annually meet to take stock, as it were, of our position; to review not only the past year, but the years which have gone beyond recall; to see how we stand, to look ahead into the future years, with whatever they may bring us; and, while taking council with each other, to encourage ourselves for the great and far-reaching object we have in hand, namely, the advancement of architecture, both as an art and a science.

The Formation of the Association.

About fifty-five years ago the Architectural Association, which was then in formation, met in a coffee house; afterwards in Lyons Inn Hall. The same burning zeal which inspired the founders is, I truly believe, still with us; the flame has in no way become dim; some of the founders are even still with us to-day, among them the venerable and esteemed Professor Kerr. From then till now is over an average life-time, and the Association is now a full-grown and vigorous body, meeting, by the courtesy of the Royal Institute of British Architects, in this their meeting room, our proceedings fully reported in an admirable professional press, and possessing a representative journal of its own production, not devoid, I venture to think, of literary merit.

We cordially welcome here to-night many old friends, while a still vaster number continue on our rolls, whose sympathy and support are essential to our well-being and progress. Their sons and successors are with us, working with a full and free hand, while, it may be, their grandsons are now in the Student Corps which our roll encloses. The Architectural Association is truly vernal. If you would renew your youth, I know of nothing likely to be so invigorating and stimulating as your attendance at one of our annual gatherings.

The labours of the Association have ever been of a self-denying character. In early days, and until within quite recent years, the new educational move, inaugurated by my distinguished predecessor in the chair, Leonard Stokes, the work of the Association was carried on by mutual self-help of an entirely honorary character. The services thus rendered gratuitously were of a high and valuable order, and many of us here to-night gratefully acknowledge our deep indebtedness for the valuable instruction thus imparted. But what was suitable for that time is wholly inadequate for to-day. Not that the conditions have so changed that we can dispense with the information of the past; but modern requirements are so exacting, and technical facilities offered by public bodies so great, that it became essential not only to bring our curriculum into line with those institutions, but to place the Association in such a position as to be able to be the head and fountain of architectural education in London.

The Establishing of the Studio

and the renting of the present premises in Great Marlborough Street was an enterprise viewed with fear and misgiving by many members. Those who pressed forward the scheme, fully believing it to be urgently necessary to meet the requirements of the time, may now, however, congratulate themselves on the success which has resulted, and on the benefits which the profession generally has derived from the facilities for study which have been afforded. Those who have passed through this course of training are only too ready to testify to the practical nature of the instruction they have received, and there is every reason to believe that the success of the past will be more than maintained in the future.

The general principle of the old classes of design is still maintained, in that the instruction or criticism is of a voluntary nature, conducted by a body of visitors specially invited, whose instruction is of the greatest value and advantage to the students attending the school of design. We are glad that this old and well-proved system still continues, and with such excellent results, in our Association work. We have not yet embarked upon the actual teaching of design in principle and practice, but that this must form a definite item in our programme of the future is not difficult to forcsee.

The Day School.

I am happy in having the privilege of recording the most successful result of the first year's work of our newly-established Day School, which is now in a flourishing and vigorous infancy. The formation of this involved a vast amount of time and thought on the part of my immediate predecessor in the chair, and its successful inauguration must be very gratifying to him. We have been most fortunate in securing as the master Mr. Arthur Bolton, to commence and complete the first year's course. To inspire enthusiasm into the new students, and to fully satisfy the intentions of a committee who were keeping their eyes upon the future of the school, must have taxed the best and most genial of men. Everything has dovetailed in a most admirable way, and the success of the first and somewhat experimental year augurs well for its long and growing influence.

The year's work has, however, demonstrated beyond all possibility of doubt the absolute necessity for other and more suitable premises. It needs no little skilful negotiation in our now very confined limits to make everything work with the smoothness so necessary in an educational institution. How difficult this is may be judged from the fact that the Day School hours are from 9.45 to 5 and the Evening School from 6.30 to 10. It is unnecessary for me to reiterate what has been stated so often from this chair—that the Committee are still on the look out for premises. I ask, however, for patience, fully expecting to be shortly able to make an announcement which, while fully meeting all our needs, will be gratifying to a degree to our members.

Ideals and Non-Ideals.

The object of the Architectural Association is to teach—in a measure—architecture, while its lofty aim is the improvement of the art. I do not by this mean to infer that it is possible for us to outshine the brilliancy of the work of the ancients, or of the masters of the Gothic or Renaissance periods. Our object is not to revive this or that period, but rather by the study, contemplation and comparison of that which has gone before us in all that is noble, beautiful and pure to acquire those principles of proportion, those refinements and elegancies of form and detail which have been the constant admiration of mankind in all ages. By such reflective study we seek to originate an inspiration which will subserve itself to the utilitarian requirements which our day and generation demand from us as architects, form being subservient to purpose, and use put into effect may be so suitably and constructively dressed as to commend its result not only to those who employ us, but to all intelligent and thinking observers of the beautiful and suitable in the greatest of the constructive arts. We feel that the deeper, the wider, and the more analytical our study of the work of the past, the better shall we be equipped for the production of original work, and the less likely shall we be to fall into the dry and uninteresting groove of the mere copyist. We desire no "New Art," casting aside in a moment the traditions of the past, but a steady and rational development on a sure and solid foundation; the same process of development which has produced everything in art which has been lasting and worthy of admiration.

Our ideal is no doubt a very high one, and in order to achieve it so far as it lies in our power we have collected for the guidance and instruction of our students (if I may quote from a recent address) "Brains, similar to the collecting of rare books or works of art." In our instructors we have a body of gentlemen of attainments which our predecessors in this Association would have envied. The requirements of the fully qualified architect cover so wide a range of knowledge, and true education is so lacking in most of us, that many are prevented from attaining the best results. We endeavour to bring the average man, who comes to us with his mental capacities trained at a good school, in contact with the best brain power the profession can offer him, and this before bad professional mental habits are formed, which eventually would lead him to wander illogically from pencil to paper, and thence into practical being in a building, which, unlike a picture, cannot be painted out, or hidden away from the gaze of mankind.

The Average Architect.

I am not afraid to assert that architecture in this country is cursed by ignorant mental habits which a simple and well-defined system of education would have rendered impossible. Even the genius (there are such, and we are glad to have them, though their percentage is small to the generality of men) may profit in no small degree by the training and knowledge we have to offer him. But it is to the average, not the exceptional, man that I wish more especially to address myself. An employer seeks the services of an architect in his necessity; that man usually is the average man. Generally speaking it is the

all-round man of good average ability who, by dint of long, patient and persistent study, is he who makes the most successful and valued practitioner. Speaking the other day of another profession, the President of the British Association said: "It was in the abundance of ordinary plodding ability, thoroughly trained and methodically directed, that Germany at present has so commanding an advantage." These weighty words abundantly express what it is the object of our Asscciation to provide, and what, I sincerely trust, it is the whole-hearted aim of our students to acquire.

We have no new style to invent. It would be as sensible to invent a new language for the British nation. But as we read Shakespeare, Milton and Addison, or study the elegancies in diction of Lamb, Burke, or Bright in writing and speaking in beautiful language, so our endeavours should be to graft upon the construction of our designs such sympathetic qualities as shall form a perfect marriage between the beauty and form of the architectural outlines and the practical necessities and objects of our buildings.

Cramming.

Our educational work is not to cram for an examination; far from it. The examinations of the Royal Institute of British Architects do indeed test our work, but are a means, not the end, we have in view. It is to be regretted that crammers do exist. I again quote Professor Dewar's brilliant address, which is singularly applicable to us as architects: "There are," said he, "plenty of chemists turned out now by our Universities, but they are of no use for practical purposes. They are chockful of formulæ. They can recite theories and they know text-books by heart. But put them to solve a new problem freshly arisen in the laboratory, and it will be found that their learning is all dead. It has not become a vital part of their equipment, and they are 'floored' by the first emergence of the unexpected." Now, the end of all this is to show that our desire is to make our students learn to think "as a vital part of their mental equipment."

A Word for Competitions.

Much has been said, and much more no doubt will be said, on the much-vexed subject of Architectural Competitions, and I do not wish to enter upon a discussion of the question from its more controversial points of view. I am amongst those, however, who do not regard them as an evil to be fought against, and eventually, if possible, abolished. The fact that they provide the young and obscure architect with his opportunity seems to me to be sufficient to justify the principle without seeking further for reasons. Almost every argument which has been urged against them has not been so much against the system as against the abuses which have occurred in their conduct; these are undoubtedly preventable, and the remedy lies entirely in the hands of the profession.

It is, however, of the educational aspect of competitions that I wish to speak. I know of no better means by which a young architect can acquire knowledge and experience in design than by taking part in a competition for a definite building of an actual site; in no other way can he so well attack the practical as well as the æsthetic problems, and in no other way can he have an opportunity of comparing his efforts with those of more experienced and practised architects. If, however, he is really to profit by such experience his design must be a serious effort, carefully studied and re-studied until it appears to its author to be as perfect as he can make it, until he can conceive no possible objection or fault which is capable of remedy. The brilliant idea, the flash of genius, dashed off in half an hour, never did and never will succeed in a competition. And withal, the young competitor (and I might also add the old one) must always cultivate the habit of self-criticism, and must be always prepared and even anxious to admit his inferiority. He must always have in mind that his task is not merely to find a solution of the problem in hand, but the best possible solution. This, of course, should be the object in all design, competition or no competition, but I fear it is so in comparatively few cases, judging by the work we see around us every day. The principle of competition should give the necessary incentive for the effort required. It is, of course, essential that the conduct of competitions should be beyond all question, and that every possible means should be adopted in the selection to secure the choice of the best design submitted. Matters have greatly improved in this respect of late years, but much still remains to be done. The profession can, if they will, compel promoters to conduct competitions in a satisfactory manner, and all those who are working for this end should have the support of every architect in their endeavours.

The General Public.

Much as architects have to deplore the ignorance and apathy of the public towards their art, I believe there is slowly, but none the less surely, developing a movement towards a better appreciation of architecture. The building public are, I truly think, growing anxious to have real architecture, and are willing to pay for it if they can get it. It is our business to give it them, so far as lies in our power. Public bodies are becoming very keen to have buildings of which they can be proud, and which are not designed merely to serve their utilitarian purpose. One sees occasionally an architectural article in the daily press, evincing nearly always, it is true, an ignorance of the subject positively appalling, but still showing that there must be a desire on the part of the public for information. It is much to be regretted that these articles when they appear are so often incorrect and misleading. We, as architects, may, I think, do much to educate the public in these matters.

To the Younger Members.

Without apology to our seniors, I now wish to address myself more particularly to our younger colleagues, and especially to those members of our Day School whom we are glad to cordially welcome within our ranks. You have entered one of the most fascinating and noble of professions it is possible to select, and with diligence and devotion to your studies you will find your work provide you with many recreations. Art is long, and life at the best short, and you will find much to interest and delight you throughout your career, It is not given to everyone to be a genius born; indeed, it is well that it is not so, insomuch as many such are impractical and visionary dreamers in a matter of fact world. Your ultimate aim is to become a refined and capable practising architect, and with this in view you will do well to organise your studies into a system which for reference will stand you in good service in after years. Reflect upon what I have said as to the cultivation of the mental habit. Analyse the reason and basis of everything. It is not enough to sketch and draw. You must enquire and investigate as to why this is beautiful, and why that is unlovely. Above all, I would have you not regard your profession as merely a means of livelihood. That, of course, is a necessity, but if you are to excel, it must be your recreation, and indeed your life. The real and sweetest reward of your labour will always be the appreciation of your fellow workers, who know so well the difficulties you have had to meet, and can estimate the measure of your success.

Draughtsmanship.

It is all important that you should be capable draughtsmen. I do not by this wish to convey the idea that draughtsmanship is architecture; far from it, it is often the reverse; but by draughtsmanship an architect is able to record his conceptions and to dissect his ideas. A well-known professor of architecture at the Royal Academy, in urging precision, advised his hearers to throw away their india-rubber. I advise you to do the reverse. Do not be afraid of that invaluable means of erasure. Rub in and rub out until you have secured what you believe to be right. Above all things, do not work upon an empty head. You might as well work upon an empty stomach and expect to have physical energy and activity. But first feed your mind with examples, reflect upon and analyse these, whether from illustrations or your own recorded sketches. Then put these on one side and conceive what is suitable to the position and character of the subject in hand. You may be only the average man, but by persistent study and patient endeavour, precept upon precept, line upon line, here a little and there a little, you will be able to build up a reserve of information which will be of great and lasting value. Anyway, there is no room in the profession for the lazy man—I hope he is not here to-night—as the rewards which diligence brings have to be sought with love and labour. Your profession calls for some self-denial—it would not be worth much if it did not do so; perhaps some expenditure of midnight oil may be necessary, but this will not be detrimental if exercised with wisdom and moderation.

The Museums and Old Buildings.

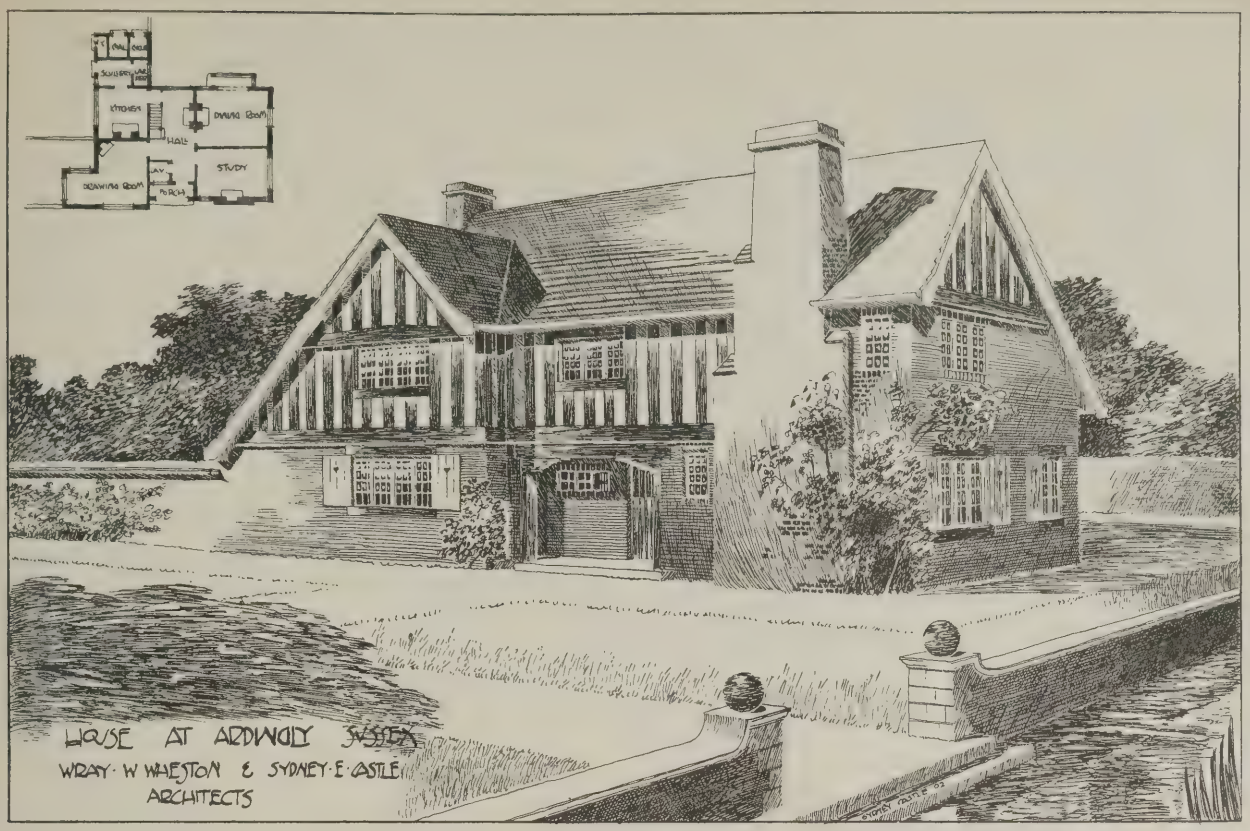
The priceless collections in our museums await your inspection and study, together with an appreciative knowledge of the best works of painting, sculpture and the allied arts, both ancient and modern. The same may be said of the ancient buildings of London and the neighbourhood. The best works of modern architects seem to me to be a fruitful and helpful study which is not fully taken advantage of by our students. Our spring and summer visits, so admirably organized, will afford you facilities for going further afield.

It has, I fear, become somewhat the custom to decry the particular value of sketching and measuring, while the standard of draughtsmanship has advanced by leaps and bounds. In recent years it would appear that the healthy habit of sketching is not so universal as it was twenty years ago. I commend it most earnestly to your careful attention. Nothing that I can say will be of so much advantage to you as the systematic and careful collection of figured sketches. I do not mean thereby the production of pretty pictures—a snapshot will effect that—but the thoughtful study of an ancient feature, with a discrimination which gives, as far as possible, the reason why, is a valuable record; and the fact of delineating impresses the study upon the mind for ever, and leaves a permanent influence for good.

The reflective habit should also be cultivated, whether in the contemplation of a noble building or the reading of a notable book.

In conclusion, I trust we shall return to our studies and duties after the recess with renewed energies, and that we shall be intent upon carving for ourselves a little niche, and leaving some executed work behind us which shall make the world more beautiful than it was before, and call forth the approval of those who will follow us

Mr. Aston Webb, A.R.A., proposed the vote of thanks to the President, which was seconded by Mr. W. Howard Seth-Smith, and supported by Mr. John Slater, B.A., Mr. C. Harrison Townsend and Mr. E. W. Mountford.



New Patents.

These patents are open to opposition until November 10th.

1901.—Tenements.—19,953. J. U. MacAuslan, 180, West Regent Street, Glasgow. All the living apartments are contained in one building and all the water-closets, lava tories, &c., in another, the two having an air space between them and being connected by platforms.

Photo-Sculpture.—21,245. W. A. C. Selke, Leipzigerstrasse 128, Berlin. The object is placed on a rotating disc and is photographed by a cinematographe under strong electric light. The series shows all the different "light sections" during one revolution: and the reproduction in plaster is built up from these sections.

The following specifications were published on Thursday last, and are open to opposition until November 17th. A summary of the more important of them will be given next week. The name in italics is that of the communicator of the invention.

1901.—18,266, Ogden, stop valves. 18,417, Abrey, plastic compositions applicable as electric insulating and acid-proof materials, &c. 19,498, Titcomb, digging, hoisting and conveying apparatus. 15,598, Defries & Feeny, tank wagons for receiving sludge, sewage, &c. 21,399, Reid, supporting, stretching and releasing tapestries. 21,406, Procter, weather-bars for French windows, &c. 22,461, Völker, washable embossed wall coverings. 22,561, Howell & Milner Safe Co., Ltd., latches, locks, &c. 23,748, Appert, rollers for sheet glass with impressed designs.

1902.—7,276, Curtis, taps. 7,682, Keyes, plate glass. 7,779, Stannard, fittings for drawing boards. 12,058, York, beams, girders, &c. 14,377, Spratt, Spratt & Spratt, drawing board. 14,690, Thompson (*Carryl*), apparatus for painting or cleansing surfaces. 15,145, Delhaye, Briatte & Dupuis, parquetry.

COLUMNS AND CONCEPTIONS.

A CRITICISM OF THE GREEK.

MR. LAURENCE HARVEY, who has just made a visit to Athens, writes to "La Construction Moderne" a letter which will interest architects, and particularly those architects who have made a scientific study of the monuments on the Athenian Acropolis. Mr. Harvey, it may be remarked, belongs to the modern school of architects, in that he likes to compare the information furnished by poets and essayists in regard to architecture with the evidence of his own senses, and occasionally with the conclusions which his trained intelligence suggests to him. Studying, before the ruins of the Propylæa, the rapturous description of Baedeker's "Guide," he was surprised to read that the interior columns of the Ionic order were 3ft. 2in. in diameter at the foot and 33ft. 7in. high. This would make them nearly eleven diameters high, and, as a conscientious pupil of the École des Beaux-Arts, he was not prepared to admit that an antique example of the order could be so abnormally slender. Moreover, the height given by Baedeker would bring the capitals of the interior columns to a level with the cornice of the exterior order, and, as it is to be presumed that the portico was covered with marble slabs, like other structures of the kind at that period, it is obvious that the covering, with interior columns of the height given, would show from the front above the cornice. As this is hardly admissible, Mr. Harvey concludes that the interior columns, of which only the bases and a few fragments remain, were probably of the same height as the exterior ones, which would give them a proportion of nine diameters, and that they carried architrave blocks, at the same level as those of the exterior order, on which the marble ceiling slabs could rest safely; and this view is confirmed by the fact that an architrave block, apparently belonging to an interior order, still lies on the ground among the other fragments of the building.

Mr. Harvey, in speaking of other Athenian buildings, gives expression to a thought which has probably crossed the minds of many other architects, that the Greeks, notwithstanding their exquisite keenness of perception and sense of beauty, did not always show that completeness of conception of their buildings which a modern architect regards as necessary, and which is so characteristic of the mediæval period. In the Theseum, as he points out, the columns of the porticos are laid out without any regard to the ceiling panels, and, in consequence, the marble slabs of the latter are sustained by stones placed almost at random, or, at least, corresponding neither with the colonnades nor with the walls of the cella; and, in order to find a support for some of these stones, it has been necessary to raise the ceiling of the western portico about 8in. above that of the lateral porticos. In the same way, the northern portico of the Erectheum, beautiful as everyone acknowledges it to be, is longer than the front of the building behind it. The fact that this brings the opening between the two middle columns, and the door behind them, out of the axis of the main body of the temple would not probably disturb the Greeks, who did not care for exact symmetry; but, looking from the court of the Erectheum, which was open to everyone, the misfit of the portico must have been painfully obvious.—(From the "American Architect.")

House at Ardingly, Sussex.—This house is proposed to be executed in oak half-timberwork 10in. wide, with red bricks in Flemish bond and white rough-cast. All the external woodwork to be of oak; the windows to be glazed with lead glazing and the frames painted white; roofs tiled with old tiles of good colour. The interior of the hall is also treated in oak, and there is to be a specially-painted frieze to the study. Messrs. Wheston & Castle, "The Studio," 22, Louvaine Road, S.W., are the architects. The drawing was exhibited at this year's Royal Academy.

Enquiries Answered.

The services of a large staff of experts are at the disposal of readers who require information on architectural, constructional or legal matters. Questions should in all cases be addressed to the Editor. The querist's name and address must always be given, not necessarily for publication.

The Four-centred Arch.

PILSLEY.—F. G. B. writes: "How are the centres obtained to describe what is called a four-centred arch?"

A four-centred arch is a pointed one having the upper part (crown and upper part of haunches) struck from two centres considerably *below* the springing, like any Gothic pointed arch with the lower part of the haunches struck from two centres *on* the springing line.

Surveying: Instruction by Correspondence, &c.

BRECON.—RURAL writes: "(1) Which is the best way to obtain instruction by correspondence in surveying and the various subjects necessary to pass the examination of the Surveyors' Institution? (2) What books would you recommend? (3) Are lectures given in any town in South Wales on these subjects, including field work? (4) Is the candidate supposed to have a knowledge of the various surveying instruments now in use? —the syllabus is not clear on this point."

(1) Several tutors for this and similar examinations advertise in our columns and those of our contemporaries. (2) It would be best to place yourself in a tutor's hands and to follow his advice with regard to books. (3) We are not aware of any lectures for the Surveyors' Institution that are given in South Wales. (4) The level and theodolite should be thoroughly mastered, both practically and theoretically, but questions relating to other instruments are rare. G. A. T. M.

Measuring Window Frames and Sashes.

WIMBORNE.—L. B. F. writes: "What is the common method of measuring window frames and sashes in co. Dorset? Are the openings only (*i.e.*, between jambs and top of sills to underside of head) measured or are 4½in. allowed at both sides and also at head?"

In measuring sashes and frames 4½in. is added to the width of the opening on each side and 3in. at the head. W. E. D.

Designing Tie-Bars of Roofs.

LONDON.—STUDENT writes: "What is the usual method in practice for determining the useful area of a flat tie-bar? Suppose, for example, a tie-bar having an area of 3 sq. in. is required. This we will say is given by a 6in. by ½in. flat bar, but deducting the rivet hole, say, 4 sq. in., the useful area of the bar is 2·6 sq. in. only. Now, is it the practice to use a bar giving the nett area, after deducting the rivet hole, or would the bar be 'swelled' at the ends to make up the area where the hole occurs?"

In flat tie-bars for roofs and other purposes it is usual to deduct the area cut away by rivets or other connections, so that the minimum sectional area corresponds with the calculated requirements. It would not pay in ordinary work to swell the ends to compensate for the holes; of course there is waste of metal, which is cheap, but as a set-off there is economy of labour, which is dear.

HENRY ADAMS.

Lowering Two Floors.

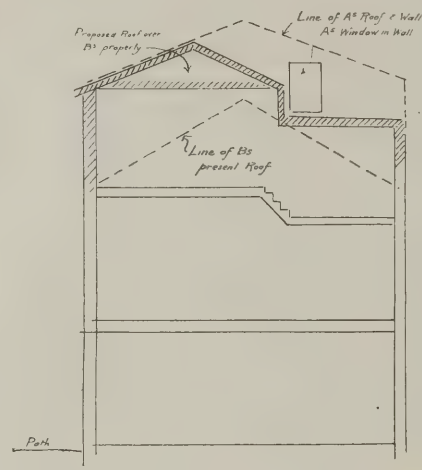
BRIGHTON.—H. G. writes: "I intend to make some internal alterations to some property, and part of the scheme necessitates lowering the existing first and second floors. How can this be done? The floors are of 11in. joists, and about 22ft. by 15ft. 9in. The present height between them is 12ft., and I wish to lower the first floor 1ft. 6in. and second floor 5ft. There are cellars under the ground floor."

This reads more like an American job than an English one, but no suggestions for doing the work can be given without further information. It is not stated whether the walls are of brick, and of what thickness, if the building is detached, if there are plaster ceilings below the floors, whether there are fireplaces, staircases, &c., to consider. Whether the walls are to remain standing as at present, and only the floors to be placed lower down, or whether the building is to be lowered the stated amounts. Whether the windows are to be lowered as well as the floors. In fact, it is a case requiring very detailed description or personal examination, and it will be better to call in a local architect to advise.

HENRY ADAMS.

Ancient Lights.

HASTINGS.—J H. writes: "A has a window in his side wall overlooking B's property. B wishes to raise his roof, but A will not consent to his window being shut in. Would B by constructing his roof as shown by the accompanying illustration, without A's consent,



lay himself open to an action at law for obstructing A's light and air, or would it be considered as no obstruction?"

Though there is a little obstruction of side light, it is so slight that no jury would award more than nominal damages were the case taken into court. G. A. T. M.

Some Building Terms.

PORTSMOUTH.—SUBSCRIBER writes: "(*a*) What is meant by a 'coped edge' to Yorkshire stone? (*b*) What are 'double arris joggle pebbles and cement' and 'double **V** joggle pebbles and cement'? (*c*) In connection with stairs, what is meant by 'state if soffits are flueing'? (*d*) What is meant by a curb joint being 'plugged' with lead? (*e*) What is 'horsing to vaults'?"

(*a*) Edge of stone dressed to show as edge of coping, as distinguished from what would be sufficient to form a joint in paving. (*b*) "Double arris," an unstopped chamfer. "Joggle pebbles and cement" means notches to joggle, cut, and when the stone is laid (coping stone, quay wall or otherwise) the opening—square or other shaped hole—is filled with pebbles and cement well rammed home. (*c*) Soffit showing continuous twisted surface. (*d*) Joggle similar to (*b*), smaller and plugged with lead instead of pebbles and cement. (*e*) The arrangement for supporting the centering.

Failure of Concrete Foundation.

EDINBURGH.—L. A. writes: "A considerable settlement was recently observed in a building erected from my designs. On opening the ground at a corner column, we found that the concrete foundation had broken in the middle. The column carried about 30 tons. The foundation was 9ft. 6in. by 6ft. 6in., and the column (cast-iron of 9in. diameter) was placed towards one end of it. The base plate of the column is 2ft. square. The concrete was extended to the left in order to bridge a drain. Granted that excessive rain had caused the ground underneath the concrete to be loosened, is it possible that the concrete is good concrete to break under such a strain? The full load was not applied until about three months after the concrete was laid."

A plan of the corner of the building should have been given, and the nature of the soil stated. The distance of the column from the edge of the concrete and the composition of the concrete should also have been given, and the position of the drain to scale should have been shown. In the natural course of things the concrete should have broken on the other side of the column, so that it would appear that there was some special want of cohesion at the part that has failed, but the conditions are so loosely given that it is impossible to reply more definitely. Enough is however given to show that the foundation is badly designed. HENRY ADAMS.

Fixing a Glass Slip across a Window.

PORTMADOC.—PLATE writes: "Across the face of a certain shop window glazed with polished plate ¼in. thick, I want to secure a plate-glass slip 4in. wide and ¼in. thick. The pane is 84in. wide. In what way could this best be done? The pane will have no other support than a little at each end."

(*a*) The slip might be stuck on with Canada balsam between it and the pane. (*b*) It might be fastened by drilled holes and small brass bolts, brash washers—separated from the glass by india-rubber. If placed close to the pane, moisture may lodge between, dust will get in and vegetable germs will grow, as may be seen where glass overlaps on roofs. If the purpose to be served permits it, probably the best job will be made by bolting the slip to the pane, keeping it some little distance apart from it either by shoulders on the bolts or washers: in this way water will not lodge capillarily, and the dust which will more or less find its way in may be removed by passing a piece of soft cloth between the slip and the pane from time to time.

Stresses on Coal Hoppers.

LONDON.—STUDENT writes: "It is required to ascertain the horizontal pressure upon the sides AAAA of the coal bins and hoppers shown by the accompanying sketch (not reproduced); also the vertical loads upon these sides and hoppers. The sides are really self-supporting, being solid web girders carried upon stanchions."

The writer has had many years' experience in designing and constructing large coal hoppers, which is a speciality not capable of being imparted to others without considerable space and time being available, and in this case the information given is insufficient to enable the matter to be dealt with thoroughly. The natural slope of coal in a hopper is 40 degs., the angle at which it will run down a screen is 35 degs., but tipped into a shoot it will run at as little as 25 degs. when dry or 30 degs. when wet. The pressure on the sides of a hopper is calculated in the same way as against a retaining wall. The load on bottom and on supports is the same as if it were any other load. No dimensions are given or any clue to the size of the hopper, which may contain anything from 1 ton to 100 tons. If more than this is to be carried it is usual to build a series composed of unit hoppers. There is no book published on the subject. It should be remembered that wrought-iron rusts very readily in a coal hopper, from various causes.

HENRY ADAMS.



CECIL BROOKS, ARCHITECT.

Books for Inspectors of Nuisances and Surveyors.

ASHBURTON.—C. E. L. writes: "(1) Is there any text-book containing the sections of law required to be known by the examination of inspector of nuisances, and those only? (2) Kindly recommend an inexpensive but trustworthy book on surveying."

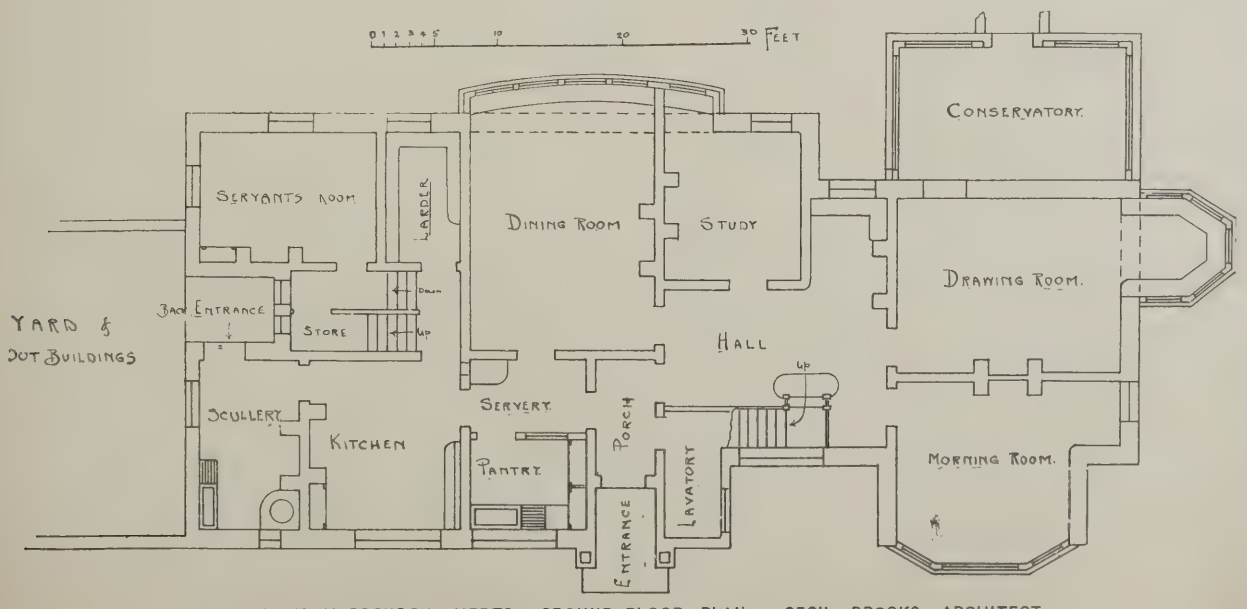
(1) "The Sanitary Inspector's Guide," by Henry Lemmoin-Cannon (London: P. S. King & Son, Orchard House, Westminster; price 3s. 6d. nett). (2) "Surveying and Surveying Instruments," by G. A. T. Middleton (London: Whittaker & Co., 2, White Hart Street, Paternoster Square, E.C; price 5s.).

Pumice-Stone Building Material.

PRESTON.—VITRUVIUS writes: "Can you give me any information of a building material into which pumice stone enters, and which is largely used in Germany? Are there any buildings of or agents for the material in England?"

Concrete both in slabs and *in situ* are made, using pumice and Portland cement. It is of course used because of its lightness. We do not know any agents for a special systematic use of this material in England; but according to a recent German report there is in the Neuwied district along the Rhine, between Coblenz and Andernach, an extensive industry in the manufacture of bricks from volcanic sand and pumice stone, which are found along the base of the Eifelberg. In working the deposits the surface soil is stripped off and the sand is piled up, to be shovelled into the mixing bed of water and lime close at hand. The pumice comes out of the earth in pieces varying in size from grains to lumps about 4in. across. It occurs in layers, but is frequently interrupted by small patches of more solid fragments of lava. Before moulding the pumice is screened, larger pieces being broken to pass through a sieve with ½in. meshes. These screened pieces are then covered with a thin coating of cement, and the brick is moulded. The cement is not mixed with the pumice so as to form solid cement blocks, but by the fragments being coated first. The brick is then obtained by these coatings adhering to one another. In the manufacture of 20,000 bricks about 4½ tons of lime are required. After the mixing process the substance is poured into iron moulds provided with bottoms of detachable boards, which, after the removal of the moulds, act as driers. When the bricks have been exposed to the air for a very short time they are ready for shipment. No modern machinery is used. A workman makes from 800 to 1,800 bricks a day.

House at Harpenden.—The materials used for this house are Bracknell special facing bricks, the roof and upper storeys being covered with red Broseley tiles. A feature is made of the hall, which is oak panelled; the staircase is also finished in oak. The woodwork externally is painted white and the casements green. Mr. Cecil Brooks, of Harpenden, and 23, Old Queen Street, Westminster, is the architect. The drawing was exhibited in this year's Royal Academy.



HOUSE AT HARPENDEN HERTS: GROUND-FLOOR PLAN. CECIL BROOKS, ARCHITECT.

Keystones.

The Queen Victoria Memorial Fund now amounts to £210,000.

The Mairie at Neuilly, near Paris, is to be elaborately decorated with ten ceiling pictures by citizens of Neuilly or of Paris. The subjects selected will depict the history of the town. The project will cost 50,000 fr.

A new Welsh Congregational Church at Llangollen is being erected in Princess Street. It will provide seating accommodation for 450, and the estimated cost is £2,500. The architect is Mr. Owen Roberts, Portmadoc; and Mr. D. Roberts, Llangollen, is the contractor.

The new Church of St. Peter's, Edmonton, in Bounces Road, was consecrated recently. The cost of the building, £10,000, is defrayed by the Ecclesiastical Commissioners from money received by them for the sale of a site of one of the City churches. The new church is in the Gothic style, of red bricks, terra-cotta, and faced with Portland stone. There is seating accommodation for 840 persons. The font is the gift of the architects.

A new Town Hall for Lambeth.—The Lambeth Borough Council is arranging for the purchase of land at Brixton for the erection of a council chamber, municipal offices and town hall. The proposed site is at the south corner of Acre Lane, at the foot of Brixton Hill, in close proximity to the railway station and the Tate Central Library. The estimated cost of the land is £25,680, which is at the rate of 12s. 6d. per ft.

The West End Church and Schools, Hammersmith, were opened last week, after having been entirely redecorated and electric light and heating apparatus installed. The apse end of the church has been remodelled, and a new pulpit, marble baptistry, choir seats and organ placed therein. Messrs. W. O. Collingwood & Co., of 3, Great Tower Street, E.C., were the contractors. Their contract amount was £1,158 15s. Messrs. George Baines, F.R.I.B.A., and R. Palmer Baines, of 5, Clement's Inn, Strand, W.C., were the architects.

M. Rodin is engaged on two magnificent *frontons*, measuring four mètres in length, destined for the castle of a wealthy *amateur* who resides at Evian-les-Bains. The subjects are the Four Seasons, represented by women, appearing from the stone in the sculptor's well-known manner. "Spring" is shown as if in a dream, "Summer" disports herself in the quiet waters of a river, "Autumn" with full eyes regards the fruit of the earth, and "Winter" turns towards the stone and darkness. Between the last two figures appears a child signifying the hope of generations to come.

At the Ancient Parish Church of Little Marlow, Bucks, which is now being thoroughly restored, three discoveries were made last week. In the chancel wall was found an old "priest's door," which had been so completely blocked up that only a careful inspection could trace any indication of it in the rough rubble surface that the wall presented. Careful cleaning and clearing out has given back the complete stone arch, with some of its mouldings. The second "find" is the original opening to the rood-loft, though no indication remains of the position or character of the steps by which it was approached. The third discovery was made within a cavity in the wall which constituted once the opening to the loft and consisted of a Norman piscina, which retains its old dog-tooth mouldings. This was simply deposited in the hollow space left when the surface of the entrance was plastered up, it is supposed, at the Reformation. It is to be replaced in the corner from which it was torn.

A New Volunteer Drill Hall has been erected at Connah's Quay at a cost of about £1,000.

New Municipal Buildings at Buckhaven, Fifeshire, were opened recently. Mr. Todd was the architect.

A Memorial Cairn has been erected in the wilds of Gaick Forest, about 14 miles from Kingussie. It marks the spot where, on the last night of the eighteenth century, occurred a catastrophe which resulted in the death of a noted Highland chieftain and proprietor, John MacPherson of Ballychroan, as well as of his friends and ghillies. The monument is of local stone, chiselled and cemented

New Premises for the Bathgate Co-operative Society have been erected at a cost of something like £10,000. The buildings occupy about three acres of land, and have a length of frontage of 165ft., containing six shops on the ground floor, with offices, workrooms and a large hall on the second floor. The stables, bakery, &c. are detached and to the rear of the main building. The architect is Mr. J. Graham Fairlie, of Edinburgh.

Partnership Dissolved.—In consequence of Mr. Hubert S. East's decision to return to the Colonies, the partnership hitherto existing between him and Mr. Edmund W. Wimperis is dissolved as from October 1st. Mr. Wimperis will in future carry on the practice alone, under his own name only, at 6, Vigo Street, W., to which address he has moved in order to secure more adequate and convenient offices.

The Elswick Mechanics' Institute, Newcastle-on-Tyne, has been extended by the addition of a new wing at the north end of the old building, connected by a corridor. The new portion comprises three storeys. The architect was Mr. S. D. Robins, Percy Street, Newcastle, and Mr. S. F. Davison, Newcastle, the builder. Messrs. T. G. Usher & Co. fitted the electric installation, and Messrs. Athwell & Nesbit, of London and Leicester, the heating apparatus.

Guildford Corn Exchange.—A good deal of feeling has been aroused in Guildford by a proposal recently adopted by the Town Council which, if carried out, will involve the demolition of the old Corn Exchange, one of the distinctive features of the picturesque High Street. This building, which stands immediately opposite the quaint old Town Hall, with its clock projecting over the street, was erected at the beginning of the last century, and is considered to be a very good specimen of Doric architecture. For very many years the charges for the county were held in the building. The Town Council has recently erected a new Corn Exchange in the Cattle Market, and in order to widen the narrow roadway known as the Tunsgate, and make a better approach to Pewley Hill, it is proposed to remove the Corn Exchange and other buildings.

A new Methodist Church and Schools at Hillsbro' have been erected from designs by Messrs. J. W. Frith & Son, of Oldham, at a cost of about £5,500. The style is Gothic and the main frontages are built entirely of stone, the outside facings being of Brighouse Pierpoint, relieved by Grenoside dressings. The sides of the chapel and schools are faced with brick. The roofs are covered with Welsh slates. The walls inside are wainscotted in pitch-pine The contractors were:—Excavating, drainage, brickwork, stonework and concreting, Mr. Harris Wood, Shepley, near Huddersfield; carpentry and joiners' work, Mr. George Broadbent, Shepley; plumbing, glazing, painting and varnishing, Mr. George Lindley, Shepley; slating and plastering, Messrs. George Beard & Sons, Thurlstone, Penistone; hot-water engineering, Messrs. W. S. Spencer, Oldham.

The new Church of Emmanuel at Stoughton, near Guildford, has been erected.

L.C.C.'s Millbank Buildings.—An effort is being made to secure the formal opening of these buildings by a member of the royal family.

St. Faith's, Stepney, was consecrated on Saturday. It is built of red brick and Bath stone, and has cost £16,000. Messrs. J. E. K. & J. P. Cutts, of London, were the architects.

A new Sanatorium for Consumptives.—At a meeting of the local society for the prevention of consumption at Newcastle last week it was decided to build a sanatorium for consumptive patients in Northumberland and Newcastle. The proposed building is to accommodate fifty patients, and will cost £50,000.

The Treasure House of the Athenians.—The Greek Minister of Public Instruction, accompanied by the Director of the French School and the Mayor of Athens, have gone to Delphi to make arrangements for the restoration of the Treasure House of the Athenians, the remains of which have been revealed by recent excavations.

A Colosseum for London is to be built on a site off St. Martin's Lane. It will be in Italian Renaissance style, and will have a lofty tower with a revolving globe on top displaying the word "Coliseum." The auditorium will accommodate about 3,000 persons and the stage will be 100ft. square. The cost is estimated at £100,000. Mr. Frank Matcham is the architect.

Excavations in Greece.—The excavations which have been carried on for some time past for the discovery of the Temple of Venus on the ridge of Mount Kotilyon, in Arcadia, have been crowned with success. Part of the temple has been brought to light, and M. Kavadias, general inspector of antiquities, feels certain that the whole of the temple will soon be unearthed. Pausanias speaks highly of this temple. The excavations are made under the care of M. Kourounioti, inspector of antiquities.

A new Bank Building at Bethnal Green has been erected for the London City and Midland Bank at 465 and 467, Bethnal Green Road. The contractors were Messrs. E. A. Roome & Co., of 36, Basinghall Street and Urswick Road, Homerton. The elevations, both in Bethnal Green Road and Hollybush Gardens, are of granite and Bath stone. The architect was Mr. T. B. Whinney, of 8, Old Jewry, E.C. The fireproof floors were laid by the Columbian Fireproofing Co., of 37, King William Street, E.C., and the electric lighting is by Mr. Charles Winn, of 106, Union Street, Borough.

Condition of Chichester Cathedral: Report of Mr. Somers Clarke.—In his report to the cathedral authorities Mr. Somers Clarke states that the western porch demands attention. Over the arch enclosing the west doors are two ugly cracks, one of old standing the other of recent date, and apparently extending. The front wall of the porch has bulged and the joints of the stonework are open in many places. Mr. Somers Clarke, among other suggestions, recommends that a large tree opposite the porch should be cut down because it prevents the action of sun and air on the western façade, to the detriment of the stonework. He reports that the walls of the detached campanile or bell tower are "in a splendid state, solid and sound," without sign of crack or settlement, but finds that the surface of the stone, which was taken from Quarre Abbey, near Ryde, in the fifteenth century, has been largely eaten away by time and weather, in some places to a considerable depth. In preference to recasing the tower with new stone Mr. Clarke suggests treating the surface with a solution of baryta, and experiments are in progress to test its suitability.

The Church of St. Mary, Eastry, near Dover, has been reopened after extensive restoration. This church was erected in 1215, and was the third built on the same site a thousand years age.

Proposed new Public Park for Birmingham.—It is proposed to secure by public subscription the Lightwood Estate at Birmingham and convert it into a public park to be handed over to the Corporation for maintenance.

Roman Remains in Hayling Island.—Mr. Talfourd Ely has removed the earth from a space measuring 50ft. by 30ft. in the south-east corner of the Roman site in the Towncil Field, North Hayling. Considerable light has thus been thrown on the arrangement and plan of the buildings excavated by him in previous years.

A New Church at Bridlington is being erected for Hilderthorpe Parish. The site adjoins Cadigan Road, and the church when completed will accommodate 794 persons. It will consist of nave and aisles, with a narthex at the west end, in a part of which the font will be placed, and there will be porches on each side. The scheme contemplates the building at some future time of a parish room on the north side of the church, with communication by a covered corridor. The tower and spire will be at the east end of the morning chapel, and will be 155ft. high. In the meantime it is only intended to build the nave and the aisle. The architects are Messrs. Brodrick, Lowther & Walker, of Hull and Bridlington. The cost of the entire scheme, including the parish room, will be about £6,000; but the nave and aisle now to be built will only cost £2,700.

Trade and Craft.

The Automatic Lift.

In the time to come—the Machine Age—there will be no need for human attendants, for we shall be silently served by strange automatons that will never tire night or day, will ask no questions, and for wages will only need a little current and a little oil. There used to be a man in every lift—in fact, this is generally the case still—but we are getting rid of that man, and eventually only a button will be left to remind us of him: indeed, such pressing of buttons is to be that our descendants will develop abnormally large finger tips and the doctors will discover a new disease called phalangitis, or something similar. But, without contemplating the possible evils of so remote a time, we may see the advantages which an automatic electric lift offers to-day. You step into it and the gate closes of its own accord. Let us say you wish to ascend to the third floor. There is a row of buttons on one side of the lift and you press No. 3. Immediately the gear is started and you go up till the third floor is reached. Here the lift stops automatically; you open the gate and step out on to the landing; then you press a button fixed on the wall and the lift goes down to the bottom again. The convenience of the arrangement is apparent. Moreover it should be explained that the lift can be made to go up or down as required, though we believe it is not possible for anyone on the upper landings to make the lift come up by pressing the button provided there. These lifts have been extensively adopted on the Continent, and many of the large apartment houses in Paris are fitted with them: but in this country they are a novelty, though doubtless they will become popular as soon as their advantages are generally known. The "Titan" lift is on this automatic system, and Mr. William Gyllich, of St. Olave's House, Lloyd's Avenue, London, E.C., will send a booklet giving full particulars of it to anyone interested in the subject.

New Companies.

F. Drake & Co., Ltd.

Registered to acquire the business of timber merchants and sawmill owners carried on by the Baltic Sawmills Co., Ltd., at Strood and Rochester, and to carry on the business of timber merchants, sawmill owners, timber growers, buyers, clearers, planters and workers of timber estates, &c. Capital £20,000 in £1 shares (4,000 six per cent. cumulative preference). The first directors are W. F. Wallis, F. Miskin, R. G. West and F. Drake. Registered offices: Medway Wharf, Canal Road, Strood.

British Smoke Consumer Co., Ltd.

Registered to adopt an agreement with T. Ireston, of Birmingham, for the acquisition of Patent No. 19,631, dated November 2nd, 1900, and the patent rights of an invention for improvements in the combustion of fuel and furnaces, and to carry on the business of manufacturers of apparatus for the consumption of smoke, the economising of steam, and the combustion of fuel. Capital £4,000 in £1 shares. The first directors are J. J. Gittings, C. H. Reynolds and F. Wilton. Registered office: 60, Newhall Street, Birmingham.

Steyning Limeworks, Ltd.

Registered to carry on the business of lime burners and manufacturers, brick, tile, pipe, pottery and earthenware manufactures, dealers in builders' materials, chalk, lime, coal and brick-earth workers, &c. Capital £1,000 in £1 shares. Registered office: Railway Station Yard, Wimbledon, Surrey.

R. H. Roberts & Co., Ltd.

Registered to acquire the business of timber agents and importers carried on by R. H. Roberts & Co., and to carry on the same. Capital £1,000 in £1 shares. Registered office: 86, Leadenhall Street, E.C.

H. A. Gilson, Ltd.

Registered to carry on business as carmen and contractors, coal-owners, colliery proprietors and agents, builders and contractors, &c. Capital £10,000 in £1 shares. Governing director, H. A. Gilson, Hornsey Station, N.

C. Burley, Ltd.

Registered to acquire the business now carried on at Borden, Murston and Sittingbourne, in Kent and elsewhere, as C. Burley, and, generally, to carry on in all or any of their respective branches the businesses of brick, tile, terra-cotta, earthenware and fireclay manufacturers; dealers in sand, lime, cement, flint, gravel, &c. Capital £50,000 in £1 shares. Directors: C., W. T. and F. F. Burley.

Coming Events.

Wednesday, Oct. 8.

Sanitary Institute (Lectures and Demonstrations for Sanitary Officers, Part I.).—Mr. J. Priestley, B.A., M.D., on "Sanitary Law," 7 p.m. Inspection and Demonstration at Lambeth Disinfecting Station, Wanless Road, Loughborough Junction, at 2.30 p.m.

Institute of Sanitary Engineers, Ltd.—Meetings of Examination and Literary Committee at 4 p.m., General Purposes and Finance Committee at 4 p.m., Election Committee at 5.15 p.m., and Members Sessional Meeting at 7 p.m.

Thursday, Oct. 9.

Manchester Society of Architects.—Presidential Address by Mr. Alfred Darbyshire, F.R.I.B.A., F.S.A.

Friday, Oct. 10.

Sanitary Institute (Lectures and Demonstrations for Sanitary Officers, Part I.).—Mr. J. Priestley, B.A., M.D., on "Sanitary Law," 7 p.m.

Saturday, Oct. 11.

Incorporated Association of Municipal and County Engineers.—Home District Meeting at Aldershot.

North of England Institute of Mining and Mechanical Engineers (Newcastle-on-Tyne).—Meeting at 2 p.m

Monday, Oct. 13.

Sanitary Institute (Lectures and Demonstrations for Sanitary Officers, Part I.).—Mr. J. Priestley, B.A., M.D., on "Duties of a Sanitary Inspector: Outdoor," 7 p.m

Wednesday, Oct. 15.

Sanitary Institute (Lectures and Demonstrations for Sanitary Officers, Part I.).—Mr. J. Priestley, B.A., M.D., on "Duties of a Sanitary Inspector: Indoor," 7 p.m. Inspection and Demonstration in the District of St. Marylebone at 3 p.m., conducted by Mr. T. Gorniot.

Architectural Association (Discussion Section).—Mr. Noel F. Barwell on "Some Recent Theories concerning Saxon and Early Norman Work in England," 7.30 p.m.

Friday, Oct. 17.

Sanitary Institute (Lectures and Demonstrations for Sanitary Officers, Part I.).—Mr. J. Priestley, B.A., M.D., on "Duties of a Sanitary Inspector: Offensive Trades and Trade Nuisances, &c." 7 p.m.

Current Market Prices.

FORAGE.

		£ s. d.	£ s. d.
Beans	per qr.	1 15 0	2 0 0
Clover, best	per load	4 15 0	5 10 0
Hay, best	do.	4 15 0	5 5 0
Sainfoin mixture	do.	4 10 0	5 5 0
Straw	do.	1 16 0	2 8 0

OILS AND PAINTS.

Castor Oil, French	per cwt.	1 5 9	—
Colza Oil, English	do.	1 5 6	—
Copperas	per ton	2 0 0	—
Lard Oil	per cwt.	2 13 0	2 14 0
Lead, white, ground, carbonate	do.	1 4 10	—
Do. red	do.	1 0 4½	
Linseed Oil, barrels	do.	1 7 1½	—
Petroleum, American	per gal.	0 0 5⅜	0 0 5½
Do. Russian	do.	0 0 4⅝	6 0 5⅜
Pitch	per barrel	0 7 0	
Shellac, orange	per cwt.	5 6 0	—
Soda, crystals	per ton	3 2 6	3 5 0
Tallow, Home Melt	per cwt.	1 9 6	1 10 6
Tar, Stockholm	per barrel	1 1 6	—
Turpentine	per cwt.	1 16 9	—

METALS.

Copper, sheet, strong	per ton	69 0 0	—
Iron, Staffs., bar	do.	6 10 0	8 10 0
Do. Galvanised Corrugated sheet	do.	11 5 0	11 10 0
Lead, pig, Soft Foreign	do.	10 16 3	10 17 6
Do. do. English common brands	do.	11 1 3	11 2 6
Do. sheet, English 3lb. per sq. ft. and upwards	do.	13 10 0	
Do. pipe	do.	14 0 0	—
Nails, cut clasp, 3in. to 6in.	do.	9 5 0	—
Do. floor brads	do.	9 0 0	—
Steel, Staffs., Girders and Angles	do.	5 15 0	6 5 0
Do. do. Mild bars	do.	6 10 0	7 0 0
Tin, Foreign	per ton	113 15 0	114 5 0
Do. English ingots	do.	115 0 0	117 0 0
Zinc, sheets, Silesian	do.	24 0 0	—
Do. do. Vieille Montagne	do.	24 0 0	—
Do. Spelter	do.	19 5 0	19 10 0

TIMBER.

Soft Woods.

Fir, Dantzic and Memel	per load	1 13 0	3 0 0
Pine, Quebec, Yellow	per load	5 5 0	6 5 0
Do. Pitch	do.	2 17 0	3 13 0
Laths, log, Dantzic	per fath.	4 10 0	5 10 0
Do. Petersburg	per bundle	0 0 8	—
Deals, Archangel 2nd & 1st	per P.Std.	9 15 0	24 15 0
Do. do. 4th & 3rd	do.	9 0 0	15 15 0
Do. do. unsorted	do.	5 12 6	6 10 0
Do. Riga	do.	6 15 0	12 10 0
Do. Petersburg 1st Yellow	do.	16 5 0	—
Do. do. 2nd „	do.	9 0 0	12 10 0
Do. do. White	do.	7 5 0	12 10 0
Do. Swedish	do.	5 15 0	15 5 0
Do. White Sea	do.	13 5 0	17 5 0
Deals Quebec Pine, 1st	Per P. Std.	20 0 0	25 0 0
Do. do. 2nd	do.	22 5 0	—
Do. do. 3rd &c.	do.	9 10 0	12 15 0
Do. Canadian Spruce 1st	do.	—	12 10 0
Do. do. 3rd & 2nd	do.	8 0 0	10 0 0
Do. New Brunswick	do.	7 5 0	8 0 0
Battens, all kinds	do	6 0 0	16 0 0
Flooring Boards 1in. prepared, 1st	per square	0 10 0	0 11 3
Do. 2nd	do	0 8 6	0 10 3
Do. 3rd &c.	do	0 7 3	0 8 9

Hard Woods.

Ash, Quebec	per load	3 17 6	5 15 0
Birch, Quebec	do.	3 12 6	3 17 6
Box, Turkey	per ton	15 0 0	20 0 0
Cedar, Cuba	per ft. sup.	0 0 3⅜	0 0 5
Do. Honduras	do.	0 0 4 15/32	—
Do. Tobasco	do.	0 0 5⅛	—
Elm, Quebec	per load	0 12 6	5 10 0
Mahogany, Average Price for Cargo, Honduras	per ft. sup.	0 0 4 25/32	—
Do. African	do.	0 0 4½	0 0 9
Do. St. Domingo	do.	0 0 3¼	0 0 6
Do. Tobasco	do.	0 0 4 7/16	—
Do. Cuba	do.	0 0 4¼	0 0 8 7/16
Oak, Dantzic and Memel	per load	3 5 0	3 15 0
Do. Quebec	do.	4 12 6	7 15 0
Teak, Rangoon, planks	do.	16 0 0	17 10 0
Wainscot, Riga (Baulk)	do.	3 15 0	5 15 0
Walnut, Odessa Crown	do.	3 15 0	5 15 0
Do. American	per ft. cube	0 2 0	0 4 6

Complete List of Contracts Open.

DATE OF DELIVERY.		WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDERS MAY BE OBTAINED.
		BUILDING:		
Oct.	9	Ardrossan, Scotland—Gasworks	Town Council	A. Gillespie, 65 Bath Street, Glasgow.
,,	9	Aberdare—Alterations, &c., to Schools	School Board	T. Roderick, Architect, Clifton Street, Aberdare.
,,	9	Andover—Brick Culvert	Rural District Council	J. Wormald, District Surveyor, Andover.
,,	9	Eastbourne—Alterations to Police Station	Watch Committee	W. C. Field, Borough Architect, Eastbourne.
,,	9	Penzance—Lavatory		F. Latham, Borough Engineer, Public Buildings, Penzance.
,,	9	Cowdale, near King Sterndale—Sixteen Cottages		E. M. Longsdon, Architect, Bakewell.
,,	10	Carlisle—Four Houses, &c.	W. D. Muncaster	H. H. Hotchkinson, 9 Lowther Street, Carlisle.
,,	10	London, E.C.—Baths	Corporation	City Engineer, Guildhall, E.C.
,,	10	London, S.W.—Six Maisonettes		F. & W. Stocker, 90 and 91 Queen Street, E.C.
,,	11	St. Albans—School	St. Peter Rural School Board	F. W. K. Tarte, Architect, St. Albans.
,,	11	Dudley—School	School Board	Barrowcliff & Alcock, Architects, Mill Street, Loughborough.
,,	11	Castlebar, Ireland—Residence	District Lunatic Asylum	J. T. Kelly, Clerk, Asylum, Castlebar.
,,	11	Sherburn Hill, co. Durham—Alterations, &c., to Chapel, &c.		W. Taylor, Architect, Newcastle.
,,	11	Liscard, Wallasey—Sand-drying Kiln, Stables, Stores, &c.	Wallasey Urban District Council	J. H. Crowther, Engineer, Great Float, near Birkenhead.
,,	11	Aber Bargoed, Wales—Fifty Houses		G. Kenshole, Architect, Station Road, Bargoed.
,,	11	Llwynypia, Wales—Vestry		Lewis & Morgan, Architects, Tonypandy.
,,	11	Lowmoor, Bradford—Shop Extension	Bradford Dyers' Assoctn., Ltd.	France, Milne & France, 99 Swan Arcade, Bradford.
,,	11	New Brimington, near Chesterfield—School	School Board	W. C. Jackson, 29 Knifesmith Gate, Chesterfield.
,,	11	Oldmeldrum—Bank House	Town and County Bank	R. G. Wilson, Architect, Aberdeen.
,,	13	Welshpool—Cottage Hospital		F. H. Shayler, Architect, Kenneth Chambers, Shrewsbury.
,,	13	Treorky—School	Ystradyfodwg School Board	J. Rees, Architect, Hillside Cottage, Pentre.
,,	13	Sheffield—Sanitary Blocks at Botanical Gardens	Town Trust	Gibbs & Flockton, 15 St. James's Row, Sheffield.
,,	13	Ilford—School	School Board	C. J. Dawson, 7 Bank Buildings, Ilford, Essex.
,,	13	London, N.—Removable Wooden Floor, Platform, &c., at Swimming Baths.	Hackney Borough Council	N. Scorgie, Borough Engineer, Town Hall, Hackney, N.
,,	13	Manchester—2,000 tons of Cement	Rivers Committee	Secretary, Rivers Department, Town Hall, Manchester.
,,	13	Dowlais, Wales—Club Building	Constitutional Club, Ltd.	James & Morgan, 10 Garden Street, Dowlais.
,,	13	Sheffield Car Shed	Tramways Committee	C. F. Wike, City Surveyor, Town Hall, Sheffield.
,,	13	Tewkesbury—Mortuary	Corporation	Borough Surveyor, Sun Street, Tewkesbury.
,,	14	Harrow, Middlesex—Court House	County Council	H. T. Wakelam, County Architect, Middlesex Guildhall, Westminster.
,,	14	London, S.E.—Weights and Measures Testing Office and Coroner's Court.	London County Council	General Section, Architect's Department, 18 Pall Mall East, S.W.
,,	14	Felixstowe—Stables and Cart Sheds	Urban District Council	Surveyor, Town Hall, Felixstowe.
,,	14	North Featherstone, Yorks—Church	Primitive Methodists	W. G. Smithson, 13 Bond Street, Leeds.
,,	14	Cwmaman—Four Houses and Two Cottage Flats	Cottage Company, Ltd.	Ll. Smith & Davies, Architects, Aberdare.
,,	15	Fulham, S.W.—Skylights, Lantern, &c.	Borough Council	Borough Surveyor, Town Hall, Fulham, S.W.
,,	15	Pebworth, near Stratford-on-Avon—Schools	School Board	Harvey Brothers, 30 King's Road, Evesham.
,,	16	Llanfairfechan, Wales—Police Station and Cells		County Surveyor, Carnarvon.
,,	16	Croydon—Cement, Lime, &c.	Town Council	Borough Road Surveyor, Town Hall, Croydon.
,,	16	Armley—Shed		C. S. Nelson, 15 Park Row, Leeds.
,,	16	Longhope, Orkney—Custom House	Commisssioners of H.M. Works	H.M. Office of Works, Edinburgh.
,,	16	London, N.—Builders' Work at Infirmary	Islington Guardians	W. Smith, 65 Chancery Lane, W.C.
,,	17	Cairncross, near Stroud—Isolation Hospital	Joint Hospital Board	Vale & Kingsford, 21 George Street, Gloucester.
,,	18	Tunbridge Wells—Flues at Electric Light Station		Borough Surveyor, Town Hall, Tunbridge Wells.
,,	19	Ardoyne, Belfast—Fire Brigade Station	Corporation	W. J. Hunter, Quantity Surveyor, Scottish Provident Bldgs., Belfast.
,,	19	Belfast—Fire Brigade Station	Police Committee	S. C. Hunter, Quantity Surveyor, Scottish Prov. Bldgs., Belfast.
,,	20	Bridlington—Underground Lavatories	Corporation	Borough Surveyor, Town Hall, Bridlington.
,,	20	Kingston-on-Thames—Ambulance Shed, Additions to Infirmary, &c.	Union Guardians	J. Edgell, Clerk, Union Offices, Coombe Lane, Kingston-on-Thames.
,,	21	Acton—House, &c.	District Council	D. J. Ebbetts, 242 High Street, Acton.
,,	21	Accrington—Works		H. Ross, 15 Cannon Street, Accrington.
,,	21	Loughor, Wales—Repairs to Bridges	Carmarthenshire County Council	J. W. Nicholas, Clerk, County Offices, Carmarthen.
,,	21	Newbridge—Twenty-eight Houses	Abercarn Urban District Council	G. Stevens, Surveyor, Council Office, Abercarn.
,,	22	Burton-upon-Trent—Car Depôt	Corporation	Kincaid, Waller & Manville, 29 Great George Street., London, S.W.
,,	22	Dublin—Eighty-four Labourers' Cottages	South Dublin Rural Dist. Council	T. J. Byrne, 1 James's Street, Dublin.
,,	22	Beverley—House	East Riding Asylum Committee	C. W. Hobson, Clerk, Newbegin, Beverley.
,,	23	Carmarthen—Boiler and Engine House		E. W. Reed, Clerk, Asylum, Carmarthen.
,,	24	East Cliff, near Dover—Coastguard Buildings	Admiralty	Director of Works Dept., Admiralty, Northumberland Avenue, W.C.
,,	29	Londonderry—Additions, &c., to Infirmary	Infirmary Committee	A. E. Murray, 37 Dawson Street, Dublin.
Nov.	15	Bromsgrove, Worcs—Lunatic Asylum	County Council	R. J. Oliver, Clerk, Shirehall, Worcester.
		ENGINEERING:		
Oct.	9	Pentre, Glamorgan—Reconstructing Bridge	Rhondda Urban District Council	W. J. Jones, Engineer, Council Offices, Pentre, Glamorgan.
,,	9	London, E.C.—1 000 Coal Wagons	Bengal-Nagpur Rly. Co., Ltd.	Secretary, 132 Gresham House, Old Broad Street, E.C.
,,	10	Alexandria, Egypt—Spur Pinion and Fly Wheel		Inspector of Irrigation, 3rd Circle, Alexandria.
,,	10	Belfast—Electric Motors	Gas and Electric Committee	V. A. H. McCowen, City Elec. Engineer, East Bridge St., Belfast.
,,	10	Wallasey, Cheshire—Hydraulic Installation	Urban District Council	Wood & Fowler, 3 Cook Street, Liverpool.
,,	10	Batley—Accumulator Cells, &c.	Corporation	Lacey, Clirehugh & Sillar, 78 King Street, Manchester.
,,	10	Leeds—Heating Plant	Corporation	City Engineer, Leeds.
,,	11	Glasgow—Pipe Laying	Corporation	J. M. Gale, 45 John Street, Glasgow.
,,	13	Dublin—Subway	Corporation	S. Harty, City Engineer, City Hall, Dublin.
,,	13	Eversley, Hants—Bridge Works	County Council	W. J. Taylor, County Surveyor, The Castle, Winchester.
,,	13	Leeds—Draining Sports Ground		City Engineer, Leeds.
,,	13	London, E.C.—Good Wagons	Assam-Bengal Rly. Co., Ltd.	F. Bennett, 6 Bond Court, Walbrook, E.C.
,,	13	Stalybridge—Boilers, Economisers, Pumps, &c.	Tramways and Electricity Board	F. Schofield, Clerk, Town Hall, Stalybridge.
,,	13	Devonport—Embankment, Road, Culvert, &c.		Borough Surveyor, Devonport.
,,	14	West Ham—Condensing Plant	London County Council	Engineer's Department, County Hall, Spring Gardens, S.W.
,,	14	Bootle, Lancs—Wiring of Refuse Destructor	Corporation	Borough Electricity Works, Pine Grove, Bootle.
,,	15	Witney, Oxon—Waterworks	Urban District Council	G. Winship, Engineer, Borough Buildings, Abingdon.
,,	15	Compton Gifford and Egg Buckland, Devon—Sewer, &c.	Plympton St. Mary R.D.C.	R. H. Worth, 42 George Street, Plymouth.
,,	15	Liscard, Cheshire—Boring	Wallasey U.D.C.	J. H. Crowther, Engineer, Great Float, near Birkenhead.
,,	15	Longwood—Reservoir		C. F. Mallinson & Son, Surveyors, Market Place, Huddersfield.
,,	16	Bootle, Cumberland—Waterworks	Rural District Council	R. Pickering, 11 Lowther Street, Whitehaven.
,,	16	Rotherham—Electric Plant	Corporation	H. H. Copnall, Town Clerk, Town Hall, Rotherham.
,,	18	Wakefield—Electric Lighting	Guardians	H. Beaumont, Clerk, Union Offices, Tetley House, Wakefield.
,,	18	East Retford—Steam Road-Roller		J. D. Kennedy, Borough Surveyor, East Retford.
,,	20	Bury, Lancs—Waterworks	Joint Water Board	J. Cartwright, Civil Engineer, Peel Chambers, Bury.
,,	20	Wigan—Electric Equipment of Tramway	Corporation	J. Slevin, Borough Electrical Engineer, Bradford Place, Wigan.
,,	20	Wigan—Cars, &c.	Corporation	J. Slevin & W. Bolton, Borough Engineer, Wigan.
,,	20	Edinburgh—Covering Yard, &c.	Caledonian Railway Co.	Company's Divisional Engineer, Princes St. Station, Edinburgh.
,,	21	London, S.W., Electric Car Traversers	London County Council	County Hall, Spring Gardens, S.W.
,,	21	London—Reconstruction of Bridge over Canal	London County Council	Engineer's Department, County Hall, Spring Gardens, S.W.
,,	21	Brandon, Suffolk—Well, &c.	Rural District Council	H. Walker & Son, Engineers, Albion Chbrs., King St., Nottingham.
,,	21	Kilkenny—Waterworks	Corporation	P. O'Grady, Executive Sanitary Officer, Tholsel, Kilkenny.
,,	27	Victoria, British Columbia—Steel Bridge		Agent-Gen. for British Columbia, 819 Salisbury House, London Wall.
,,	28	Vielsalm to Lierneux, Belgium—Railway	National Co. of Local Railways	Company's Offices, 14 Rue de la Science, Brussels.
,,	30	Shanghai—Electrical Plant	Municipal Commissioners	Preece & Cardew, 8 Queen Anne's Gate, Westminster.
Nov.	14	St. Petersburg—Electric Traction on Tram Lines	Stadt Amt (Town Council)	Stadt Amt, St. Petersburg, Russia.
,,	28	Burton-on-Trent—Inclined Retort Plant	Corporation	F. L. Ramsden, Manager, Gas & Elec. Light Wks., Burton-on-Trent.
,,	29	Manchester—Reconstruction of Bridge		City Surveyor, Town Hall, Manchester.
,,	30	Shanghai—Electric Lighting	British Municipal Councils	Office of the Board of Trade, 50 Parliament Street, S.W.
Dec.	13	Madrid—Canal Reservoir		Office of the Ministry of Agriculture, Commerce and Public Works, Madrid.
		IRON AND STEEL:		
Oct.	9	Salford—Iron Staircase at Workhouse	Union Guardians	Master, Workhouse, Eccles New Road, Salford.
,,	9	London, S.W.—Chains and Springs	Southern Mahratta Rly. Co., Ltd.	E. Z. Thornton, 46 Queen Anne's Gate, Westminster, S.W.
,,	9	Dublin—Steel Rails, &c.	Gt. S. & W. Rly. Co. (Ireland)	Company's Engineer, Inchicore, Dublin.
,,	11	Bootle, Lancs—Tank, Cast-iron Pipes, &c.	Corporation	Borough Electrical Engineer, Pine Grove, Bootle.
,,	11	Rawdon—Iron Fencing		J. S. Brayshaw, Queen Street, Rawdon.
,,	13	New Malden—Ironmongery, &c.	Urban District Council	C. T. Lewis, 7 Market Place, New Malden.

COMPLETE LIST OF CONTRACTS OPEN—*continued.*

DATE OF DELIVERY.		WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDERS MAY BE OBTAINED.
		IRON AND STEEL—*continued.*		
Oct.	14	Manchester—Ironwork	Waterworks Committee	G. H. Hill & Sons, 3 Victoria Street, Westminster.
,,	14	Bury, Lancs—Rails, Bonds, &c.	Tramways Committee	Lacey, Clirehugh & Sillar, 2 Queen Anne's Gate, Westminster.
,,	15	Amsterdam—Railway Stores	Minister of Colonies	Nart. Nyhoff, The Hague.
,,	15	Callao, Peru—Cast-iron Pipes	Corporation	Graham, Rowe & Co., Mersey Chambers, Liverpool.
,,	15	Amsterdam—Metalwork, Pipes, Frames for Trucks, &c.	Minister of the Colonies	Nart. Nyhoff, The Hague.
,,	16	Croydon—Stores	Town Council	Borough Road Surveyor, Town Hall, Croydon.
,,	29	Callao, Peru—Cast-iron Pipes	Corporation	Graham, Row & Co., Liverpool.
		PAINTING AND PLUMBING:		
Oct.	10	Barrow-in-Furness—Painting at Hospital	——	J. J. Waddington, 10 Hartington Street, Barrow-in-Furness.
,,	11	Tonna, Neath Painting Chapel	——	W. Matthews, Tonna.
,,	16	London, S.E.—Painting, &c., Baths	Lambeth Borough Council	H. Edwards, Borough Engineer, Lambeth Town Hall, Kennington Green, S.E.
		ROADS AND CARTAGE:		
Oct.	9	Halifax—Paving and Forming Streets	——	L. Coates, Architect, Yorkshire Bank Chambers, Waterhouse Street, Halifax.
,,	11	Devonport—Levelling, Paving, &c., Streets	Town Council	Surveyor, Municipal Offices, 29 Ker Street, Devonport.
,,	11	Sheerness—Materials	Urban District Council	T. F. Berry, Surveyor, Council Offices, Sheerness.
,,	13	Basford- Forming, Kerbing, &c., Streets	Rural District Council	G. W. Hawley, Surveyor, York Chambers, King Street, Nottingh'm
,,	13	Ebbw Vale, Mon.—Limestone	Urban District Council	T. Hughes, Clerk, Council Offices, Ebbw Vale.
,,	13	Southampton—Materials	Corporation	J. A. Crowther, Borough Engineer, Southampton.
,,	13	Margate—Materials	Town Council	E. A. Borg, Borough Surveyor, Town Hall, Margate.
,,	13	Beckenham—Road Widening and Paving	Urban District Council	J. A. Angell, Surveyor, Council Offices, Beckenham.
,,	14	West Ham, E.—Making-up Streets	Borough Council	J G. Morley, Borough Engineer, Town Hall, West Ham, E.
,,	14	Felixstowe—Improving Road	Urban District Council	Surveyor, Town Hall, Felixstowe.
,,	14	Bournemouth—Road-making	Corporation	F. W. Lacey, Borough Engineer, Bournemouth.
,,	14	Dartford—Kerbing, &c.	Urban District Council	W. Harston, Surveyor, 8 Hythe Street, Dartford.
,,	14	London, N.W.—Road Making and Paving Works	Willesden District Council	O. C. Robson, Engineer, Public Offices, Dyne Road, Kilburn, N.W.
,,	15	Rawtenstall, Lancs—Street Works	Corporation	A. W. Lawson, Borough Surveyor, Municipal Offices, Rawtenstall.
,,	16	Croydon—Materials and Stores	Town Council	Borough Road Surveyor, Town Hall, Croydon.
,,	17	Preston—Levelling, Paving, &c.	Corporation	Borough Surveyor, Town Hall, Preston.
,,	21	Acton—Making-up, &c., at Cemetery	District Council	D. J. Ebbetts, 242 High Street, Acton.
		SANITARY:		
Oct.	9	Garlinge, Isle of Thanet—Sewer	Rural District Council	F. T. Elliot, District Surveyor, Birchington.
,,	9	Rhondda—Sewer	Urban District Council	W. J. Jones, Surveyor, Council Offices, Pentre, Glam.
,,	10	London, E.C.—Sanitary Fittings to Artizans' Dwellings	Corporation	City Engineer, Guildhall, E.C.
,,	11	Buxton—Sewer, &c	Urban District Council	Borough Surveyor, Buxton.
,,	14	Cradley Heath, Staffs—Sewers	Quarry Bank U.D.C.	W. Fiddian, Engineer, Old Bank Offices, Stourbridge.
,,	14	Felixstowe—Sewerage Works	Urban District Council	Surveyor, Town Hall, Felixstowe.
,,	15	Compton Gifford and Egg Buckland, Devon—Sewer, &c.	Plympton St. Mary R.D.C.	R. H. Worth, 42 George Street, Plymouth.
,,	15	Aldeburgh, Suffolk—Sewers, &c.	Town Council	J. C. Gordon, Borough Surveyor, Aldeburgh.
,,	16	Carlton—Scavenging	Urban District Council	J. E. Truman, Inspector of Nuisances, Godfrey Street, Netherfield.
,,	16	Uxbridge—Sewers, &c.	Rural District Council	J. F. Stow, Engineer, Corn Exchange, Uxbridge.
,,	16	Croydon—Drain Pipes, &c.	Town Council	Borough Road Surveyor, Town Hall, Croydon.
,,	24	Brigg, Lancs—Sewers, &c.	Urban District Council	R. E. W. Berrington, 28 Victoria Street, Westminster, S.W.
Dec.	15	Monte Video—Sanitary Works	Government of Uruguay	Uruguay Legation, London.

List of Competitions Open.

DATE OF DELIVERY.		DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Oct.	9	Greenwich—Public Library	£50, £30.	F. Robinson, Town Clerk, Town Hall, Greenwich.
,,	11	Milford, Ireland—Lighting of Towns of Milford, Ramelton and Rathmillen.	——	S. Walters, Clerk to R.D.C., Town Hall, Milford, Ireland.
,,	14	Newark—Alterations and Additions to Infirmary	£21.	Mr. H. Colton, Clerk to Guardians, 27 Lombard Street, Newark.
,,	15	Strood—Infectious Diseases Hospital	£15 15s.	J. E. Povey, Clerk, Strood Union, Rochester.
,,	20	Port Erin—Railway Station	£21.	G. H. Wood, Secretary, Isle of Man Railway Co., Douglas.
,,	25	Hamilton, Scotland—Tenements	£15 15s., £10 10s., £5 5s.	W. Pollok & P. M. Kirkpatrick, Town Clerks, Town House, Hamilton.
Nov.	1	Allahabad—Memorial to Queen Victoria	2,000 Rs.	H. N. Wright, Indian Civil Service, Allahabad, India.
,,	29	Ramsgate—Technical Schools and Free Library	£50. £25, £15.	T. G. Taylor, Borough Surveyor, Albion House, Ramsgate.
Dec.	1	Arundel, Sussex—Laying-out Land	£50, £20.	A. Holmes, Town Clerk, Arundel.
,,	18	Durban, Natal—Town Hall, Library, Museum, &c.	£500, £300, £200.	W. H. Radford, Albion Chambers, King Street, Nottingham.
Jan.	31	Cape Town—University Buildings	£400. £200, £100.	Agent-General for the Cape of Good Hope, London.
,,	31	Hull—Town Hall Extension	£300, £200, £100.	E. Laverack, Town Clerk, Town Hall, Hull.

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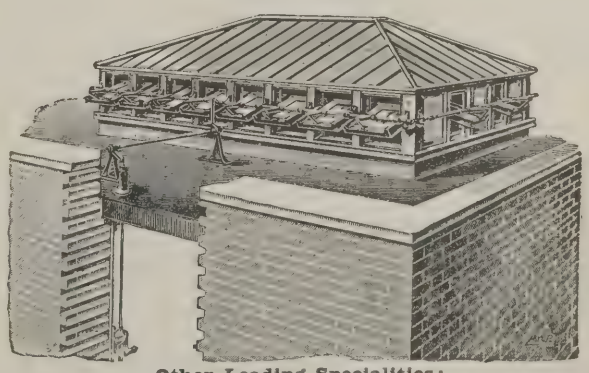
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Tenders.

Information from accredited sources should be sent to "The Editor" at latest by noon on Monday if intended for publication in the following Wednesday's issue. Results of Tenders cannot be accepted unless they contain the name of the Architect or Surveyor for the work.

Addressed postcards on which lists of tenders may be stated will be sent post free on application to the Manager, BUILDERS' JOURNAL, *Effingham House, Arundel Street, Strand, W.C*

Alloa (N.B.).—For causewaying Bedford Place, Glasshouse Loan, and lifting and recausewaying Drysdale Street, for the Town Council. Mr. A. Mackie, burgh surveyor:—

R. C. Brebner & Co., Edinburgh	£4,687 15 1
D. B. Shaw, Kilsyth	4,490 1 9
H. Brunton & Son, South Queensferry	4,422 16 5
W. Wilson, Glasgow	4,204 4 7
H. & N. Brannigan, Glasgow	4,154 19 10
Bowden Lime Co., Boness	3,873 16 4
Marshal, Sweeney & Co., Falkirk	3,795 7 6
J. Kennedy, Kirkcaldy	3,762 14 1
W. Dobson,* Yeaman Lane, Edinburgh	3,749 5 3

* Accepted.

Bexley Heath (Kent).—For the erection of four cottages on the Foresters' Asylum Estate, Bexley Heath, Kent. Mr. W. F. Potter, architect, 18, York Grove, Queen's Road, Hatcham, S.E.:—

J. Shelley, East Dulwich	£1,950 0 0
Robson & Moon, West Croydon	1,935 6 0
W. F. Blay, Bexley	1,816 0 0
J. Lonsdale, Swanley Junction	1,714 0 0
W. Coates, Peckham	1,642 0 0
Coulsell Brothers, Bethnal Green	1,600 0 0
Crabb & Son, Brixton	1,540 0 0
H. J. Atkin, West Ham	1,457 12 6
W. F. Small, Crofton Park, S.E.	1,275 0 0
Arnold & Co., New Cross	1,269 0 0
G. A. Bown, Walthamstow	1,220 0 0
J. Dawson, Peckham Rye	1,200 0 0
Enness Brothers, Erith	1,178 0 0
Poulton & Scns.,* Westbrook Road, Thornton Heath	1,120 0 0
W. Mayhew, Stoke Newington	1,095 0 0

* Accepted.

Croydon.—For alterations and reconstruction of present lounge bar at "Swan and Sugar Loaf" Hotel, Brighton Road, Croydon, for Mr. J. C. Brown. Mr. F. Windsor, architect, 9 and 10, Bank Buildings, George Street, Croydon. Structural alterations only:—

Huntley Brothers	£398
Gowman	384
Hanscomb & Smith	324
Horrocks	310
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Epsom.—For alterations and fitting-up shop in High Street, Epsom, for the International Tea Company, Ltd. Messrs. William Eve & Sons, architects, 10, Union Court, Old Broad Street, E.C.:—

Jones & Son	£1,930
Soole & Son	1,870
Lascelles & Co.	1,865
Watts, Johnson & Co.	1,820
Edgoose	1,818
Barker	£1,775
F. & H. F. Higgs	1,740
Roll & Taylor	1,695
Saunders	1,560

Harrogate.—For supply and delivery of material necessary for the laying of about 6,000yds. of light railway (single line) for steam or electric traction, 24in. gauge, including rails, patent rail supports, chairs or sleepers, also keys or other fasteners, together with the necessary points and crossings for sidings, &c.; also turntables, for the Harrogate Corporation (Masham water scheme). Mr. Edward Wilson Dixon, M.I.C.E., engineer, 14, Albert Street, Harrogate:—

R. Hudson, Leeds	£1,802 5 0
A. von Glehn & Co., London	1,606 2 6
J. Fowler & Co., Ltd., Leeds	1,590 10 0
Askham Brothers & Wilson, Ltd., Sheffield	1,536 18 6
Kerr, Stuart & Co., Ltd., London	1,490 16 4
Heenan & Froude, Birmingham	1,481 0 0
A. Penney & Co., London	1,397 13 4
Dick, Kerr & Co., Ltd., London	1,394 10 0
W. G. Bagnall, Ltd., Stafford	1,357 16 8
R. White & Sons, Widnes, Lancs	1,302 14 2
E. Le Bas & Co., London	1,287 13 1
Orestein & Koppel, London	1,284 11 8
T. Summerson & Sons, Ltd., Darlington	1,271 12 6
A. Koppel,* London	1,227 18 4
W. Bain & Co., London	1,223 10 0
C. F. E. Swindon & Co., London	1,086 16 1
W. H. White & Co. (Decker & Co.), London	1,070 0 0

* Accepted.

Leighton Buzzard.—For rebuilding Messrs. Morgan and Co.'s carriage factory at Leighton Buzzard, recently destroyed by fire:—

T. Yirrell, Leighton Buzzard	£3,747
Colman & Co., Bedford	3,594
Phillips & Blake,* Harpenden	3,400

* Accepted.

Middleton Hall, Norfolk.—Accepted for alterations and additions at Middleton Hall, Norfolk. Mr. Herbert J. Green, architect, 31, Castle Meadow, Norwich:—

J. Kinninmont & Sons, 26, Chilworth Street, Gloucester Terrace, London, W. £2,390

Mitcham.—For the erection of a school at Lonesome for 280 children, together with caretaker's house, for the Mitcham School Board. Mr. H. Carter Pegg, architect, 137 Brigstock Road, Thornton Heath:—

E. J. Burnand, Wallington	£5,040
General Builders' Company, Notting Hill	4,997
R. A. Lowe, Chislehurst	4,995
Jenkins & Co., Streatham	4,803
W. Smith & Sons, West Croydon	4,763
Burges & Sons, Wimbledon	4,700
H. Leney & Son,* 36 Hawthorne Grove, Penge	4,580

* Accepted.

Norwich.—For the erection of additional classrooms and alterations at the Thorpe Hamlet Girls' School and Nelson Street Boys' and Girls' Schools, for the Norwich School Board. Mr. C. J. Brown, architect, Cathedral Offices, Norwich:—

Nelson Street Schools.

Downing & Son	£1,629
W. Wilkin, jun.	1,379
Severidge	1,368
Daws & Son	1,360
Scarles Brothers	1,340
Gill	1,330
T. C. R. King	1,300
Haydon & Daniels	1,299
Chapman & Son	£1,298
Boddy & Son	1,199
Youngs & Son	1,198
Lincoln & Bush	1,150
Hannant	1,123
H. C. Greengrass,* Pitt Street, Norwich	1,120

Thorpe Hamlet Schools.

Downing & Son	£817
T. C. R. King	805
A. C. Taylor	800
T. Gill	729
Scarles Brothers	725
Chapman & Son	699
Haydon & Daniels	683
Lincoln & Bush	£681
Greengrass	649
Boddy & Son	649
Youngs & Son	628
W. J. Hannant,* 118, Churchill Road, Norwich	607

* Provisionally accepted.

Southampton.—For the construction of tramways in Onslow Road, Bevoir Valley, and Portswood Road, having a total length of about 2,058yds. of single track, for the Corporation. Mr. J. A. Crowther, borough engineer:—

M. A. Shepstone & Co., London	£3,317 11 11
P. Smith, London	3,040 14 0
W. L. Meredith & Co., Ltd., Gloucester	2,821 12 9
F. Grace	2,571 0 0
Douglas & Richards	2,360 0 0
F. Osman	2,298 0 0
Coston & Co.,* Ltd.	2,283 0 0

* Accepted. [Rest of Southampton.]

South Wooton, Norfolk.—For alterations and additions to house at South Wooton, Norfolk. Mr. Herbert J. Green, architect, 31, Castle Meadow, Norwich:—

John Cracknell, Peterborough	£298 0
Robert Dye	285 0
Tash, Langley & Co.	279 11
Read & Wildbur*	274 0

[Rest of King's Lynn.]

* Recommended for acceptance.

Stretford (Manchester).—For the erection of generating station for the Stretford Urban District Council. Mr. Ernest Woodhouse, architect, 88 Mosley Street, Manchester:—

W. D. Scott	£12,000
W. Healey, Salford	11,050
J. Byrom, Woolfold	10,669
J. H. Vickers, Ltd., Nottingham	10,240
H. Vickson & Son, Nottingham	10,100
C. Robinson Salford	10,000
J. Ramsbottom, Pendleton	9,900
C. Wallworth, Gorton	9,800
J. Bland	9,489
Burgess & Galt, Ardwick	8,970
B. Morton	8,937
Normanton & Sons	8,839
T. & W. Meadows, Stockport	8,776
S. Warburton	8,685
W. Thorpe, 380 Chester Road, Old Trafford, Manchester*	8,587

* Accepted.

[*Continued on* p. xvi.

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TENDERS—*cont.*

Nottingham.—For the construction and erection of a refuse destructor and stables at their depot, Wollaton Road, Radford, for the City Council. Contract No. 1: erection and completion of destructor building, fan-room, stores, chimney 160ft. high, and stabling. Contract No. 2: about 50 tons of steelwork in roof principals, purlins, trough flooring, girders and stanchions, &c., and about 6½ tons of cast ironwork in chimney cap, roof standards, &c. Mr. Arthur Brown, M.I.C.E., city engineer:—

Contract No. 1.

G. A. Pillatt, 92 Sherwood Street	£5,918 13
W. Woodsend, Lenton Boulevard	5,642 0
W. Maule, 3c4 Mansfield road	5,510 0
T. Barlow, Beauvale road	5,415 0
H. Vickers & Son, Waterway Street	5,149 0
J. H. Williamson, Lenton Boulevard	5,090 0
J. Hutchinson & Son,* Gordon Road	4,820 0

Contract No. 2.

Constructional Engineering Company, Adelphi Street, Salford, Manchester	£1,986 0 0
A. Handyside & Co., Britannia Ironworks, Derby	1,042 17 3
G. Sands & Son, Hooton Street	1,041 0 0
T. W. Ward, Fitzalan Chambers, Sheffield	1,030 0 0
Westwood & Wright's Hope Gasholder and Engineering Company, Brierley Hill	993 8 0
Newton, Chambers, & Co., Thorncliffe Ironworks and Collieries, near Sheffield	960 0 0
J. Tildesley, Ltd., Crescent Ironworks, near Willenhall	924 17 6
Baxendale Brothers, Kenyon Street Ironworks, Rochdale Road, Manchester	924 0 0
Horseley Company,* Tipton, Staffs	872 15 2

* Accepted. [Rest of Nottingham.]

Saltash.—For construction of roads and sewers on the Barn Park Estate, for Mr. J. Bennett. Mr. Edgar M. Leest, M.S.A., architect and surveyor, Devonport:—

J. Willcocks	£563 0 0
A. J. Richards	453 0 0
W. H. Rothery	420 0 0
J. Shaddock	389 8 8
Jefford & Son*	367 8 8

* Provisionally accepted.

Walsall.—For the erection of a new school to accommodate 1,000 children, and a caretaker's house at North Walsall, for the Walsall School Board. Mr. H. E. Lavender, M.S.A., architect, Bridge Street, Walsall:—

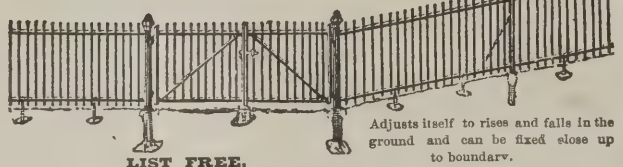
Williams & Oakley, Wolverhampton	£12,227 18
F. L. Jones, Wolverhampton	11,693 0
W. Hopkins, Birmingham	11,600 0
W. Kendrick & Son, Walsall	10,925 0
G. H. Marshall, Smethwick	10,509 0
S. Wooton, Bloxwich	10,437 0
M. A. Lynex, Walsall	9,995 0
J. Dallow, Birmingham	9,850 0
W. Wistance, Walsall	9,740 0
W. H. Gibbs, King's Heath	9,670 0
J. Mallin, West Bromwich	9,599 0
J. W. Lowe & Sons, Burton	9,387 0
T. Tildesley,* Willenhall	9,198 0

* Accepted.

The Masonry of Connel Bridge, which is built over Loch Etive, is well advanced, and the erection of the steelwork on both sides is now in progress. This structure forms a part of the Callander and Oban Railway extension from Connel Ferry to Ballachulish, and is the greatest engineering feat ever attempted in the Highlands. The design adopted is that known as the cantilever, and when completed the span of 500ft. will be the second largest in Europe, coming next to that of the Forth Bridge. The navigation for small steamers and other craft to the upper reaches of the loch must be preserved, and the clear height of the bridge above ordinary high tide is to be 50ft.

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An Architectural Causerie.

Our New Competition. In our next issue we shall publish full particulars of a novel competition which we believe will be of considerable interest and value to our readers. It has been urged against many competitions that they are a pure waste of time and labour, but, as will be seen, no such charge can be justly brought against this new competition of ours. Briefly, it consists in re-designing the front of some premises in Fleet Street. Work of this nature has often to be done by architects in practice and the experience which competitors—more especially architectural students—will gain in endeavouring to solve the problem in the best possible manner will, we think, serve them in good stead when similar work is placed in their hands.

L was a Layman. A layman having "several architectural friends" writes a lot of bosh to the "Times" about the Liverpool Cathedral Competition. He fills nearly half a column with a windy complaint which amounts to nothing more than this—Mr. Bodley and Mr. Shaw judged the architects according to the trouble they took with their designs, while the Executive Committee, "knowing that eminent and busy architects cannot spare the time to make special drawings for a competition of this kind, particularly invited these very men not to send in competitive designs, but to announce their willingness to enter into the final competition . . ." And then our lay friend goes on to name some of the men in question, but his mention of Mr. Leonard Stokes is rather unhappy, for it happens that Mr. Stokes sent in a very elaborate design for the cathedral, so our poor layman's argument is a pretty weak one—about as weak as that of the temperance advocate who corrected the Apostle's reference to taking a little wine with his "Ah! but that meant outward application." And thus the last state of that man was worse than before. Our dear layman is much in the same plight. He had better not risk another criticism.

Albany Cathedral. At a time when so much is being said about new cathedrals the illustration on this page is particularly interesting. Albany is the capital of the State of New York, and, compared with other American cities, is irregularly laid out. The capital, the State Hall and the City Hall (the two latter, of white marble, face the former across a square called Capitol Park) are perhaps its chief buildings, but this new cathedral of All Saints is very fine in its general effect.



CATHEDRAL OF ALL SAINTS, ALBANY, NEW YORK, U.S.A. ROBERT W. GIBSON, ARCHITECT.

Bribes. A London architect (F.R.I.B.A.) draws our attention to a printed circular letter which has been sent to him by a certain firm at Battersea. This firm manufactures varnishes, colours and paints, which can be offered "at prices comparable with equal quality far below those current." The difficulty of making representatives fully alive to the altered conditions of business compels this firm to conduct its business by correspondence. Ingenious so far; but this is the point of the letter—"We are willing to give that consideration which would otherwise be given in representatives' expenses in shape of a liberal commission for all business introduced to us." In other words, a bribe. The letter itself is not addressed to anyone, and the envelope gives no indication that our informant is an architect. Possibly a mistake—sent to the wrong address; possibly not. In any case it is useful for architects to know these little matters, though no honest member of the profession would specify somebody's varnishes because he was paid to do so.

Sonning Bridges. The proposed designs by Mr. E. L. Lutyens for the bridges at Sonning, published in "Country Life" for October 4th, would certainly be better than the iron bridge decided on. They consist of oak beams on timber piles, with struts radiating to support the beams at intermediate points in the spans. These beams have a slight camber, which adds strength where most needed and gives a pleasing varying line to the hand-railing. The roadway is formed of steel joists and concrete. The first design, with brick piers just above the water line, would be more permanent than the second, in which the piles are merely driven into the river bed. The cost of replacing the existing timber portions and repairing and widening the brick arched construction from 16ft. to 20ft. is estimated by Messrs. William Cubitt & Co. at £6,158 and £4,264 respectively, as against £8,000 for the iron bridge. As to stability, we may mention that Brunel's timber viaducts on the Great Western Railway were built more than a century ago, and have stood the vibration and wear of fifty years of railway work.

RECENT STREET ARCHITECTURE IN LONDON.---VII.

By F. HERBERT MANSFORD.

(*Concluded from p. 4, No. 393.*)

THERE is not the same amount of rebuilding going on in South London as in the north, but probably very large areas will be reconstructed during the next twenty years, owing to the lapse of leases. The wide thoroughfares which intersect here in all directions afford splendid opportunities for quick electric locomotion and for the erection of lofty buildings almost unimpeded by restrictions of ancient lights. Electric "tubes" will connect South London more effectively with the north and discount the barrier of the river with its tramless bridges. In Paris even the narrow Seine has confined the chief commerce to the north bank, but Government and university buildings give importance to the south. If Father Thames had taken a straight course from Hammersmith to London Bridge the present sites of the Kensington Museums, Buckingham Palace and Westminster Abbey would be south of the river. Not the buildings, however; they would probably have been further north, for rarely has South London been adorned by any royal or national edifice. When Britten & Pugin published their "Public Edifices of London" in 1828, the Surrey side was represented by Astley's Amphitheatre and Bethlehem Hospital. There were but six bridges across the river below Hammersmith. There are now fourteen road bridges, seven railway bridges, four tunnels and a free ferry; the population of South London has risen to two millions, and a beneficent Government has adorned it with the Brixton Prison for Females and the Government Stores for India. Even the County Council seems to ignore the possibility of reclaiming the foreshore below Westminster Bridge and building itself a riverside palace thereon. Perhaps, wisely; but what a betterment rate could they levy on the neighbourhood for their condescension! South Londoners do possess one of the finest architectural groups of the Metropolis—the buildings of Greenwich Hospital—but they have acquired it only by their own persistent expansion.

As things are, one can enjoy an unwonted amount of sky and sunshine in the main thoroughfares, and the low buildings give prominence to the few important structures in their midst. It is much to be wished that Pugin's design for a hexagonal spire 320ft. high to St. George's Cathedral could be carried out, for it would be seen to great advantage in the neighbourhood and from the opposite side of the Thames.

On the river-bank nearly facing the Tate Gallery is the new portion of Burdett's Bonded Stores, from the design of Mr. Frederick Vigers. It is not a building to attract the notice of an ordinary pedestrian; it displays no ornament; it merely and unaffectedly fulfils its purpose, and is in admirable harmony with its environment of barges and wharves. It calls up reminiscences of the Low Countries on both sides of the North Sea, but not by imitation. The outline of the building is partly dictated by convenience, for it is situated at the junction of a basin and the river, and one corner is boldly rounded to facilitate the movements of the lighters.

The New Belgrave Hospital for Children in the Clapham Road is bright red from pavement to lofty ridge, unrelieved by anything but occasional stone dressings. It consists of an administration block and a north pavilion of superimposed wards; its position on the site suggests that a south pavilion is contemplated for the future. Mr. H. Percy Adams has obtained a striking effect by his masses and piles of simple brickwork. The ventilation and smoke flues are gathered together and carried up in a buttress-like fashion, flanking the walls, and break the ridge of the administrative block in a similarly monumental fashion. Some may consider the shortness of this ridge regrettable, but Mr. Adams appears to have intended to obtain an impression by height, and has consistently emphasized his vertical lines throughout, leaving the horizontal ones unaccentuated. Instead of eaves or cornice, there is a stepping-in of the walls towards the top, the whole building possessing a slightly pyramidical outline, strong and unusual. Spirelets on the flanking towers of the great gable would have relieved the bluntness of these sanitary appendages, but bluntness was apparently intended; and, again, it is scarcely fair to suggest unnecessary features in connection with a hospital design when the elevations tell mutely of economy.



THE NEW BELGRAVE HOSPITAL FOR CHILDREN, CLAPHAM ROAD, S.W.
H. PERCY ADAMS, F.R.I.B.A., ARCHITECT.



THE BISHOP'S HOUSE, KENNINGTON PARK, S.E.

The town residence of the Bishop of Rochester is almost pathetically situated behind the Kennington Theatre. Although so overshadowed, it manages to attain a certain measure of dignity by its quietness and symmetry. It is of a formal Georgian type, with a deep plaster cove at the eaves and a tiled roof broken by frequent dormers. The south elevation is towards Kennington Park, the west faces a gravelled forecourt, and the east a lawn and garden.

The Lambeth Baths revel in a site worthy of a town hall, being situated at the corner of two wide thoroughfares (the Kennington and Lambeth roads) and built back some distance from the pavement. Only South London can offer such sites but a mile distant from Charing Cross. Mr. A. Hessell Tiltman has availed himself of the oppor-

tunity and designed one of the best groups of public baths in London.

The elevation of the station and offices of the London Necropolis Co. in Westminster Bridge Road is ponderous, but scarcely funereal (see p. 140). Were it not for the inscriptions, it might be taken for warehouse and offices of a superior class, instead of a building intimately connected with those periods when the emotions claim expression, if only of quietness and dignified restraint. The large unpolished arch of grey granite carries a superstructure of red brick and buff terra-cotta; the windows have deep reveals, and the whole is crowned with a semicircular pediment, but nowhere is there a suggestion of the very-well-thought-out arrangements and design within, unless we except the pleasing and rather novel use of glazed brickwork visible through the archway of the ground floor.



CHAPEL, OLD KENT ROAD, S.E.
BANISTER FLETCHER AND SONS, ARCHITECTS.

The Library of St. George the Martyr, Southwark, in the Borough Road, is one of the numerous buildings for which we are indebted to the generosity of Mr. Passmore Edwards. In this case Mr. Blomfield Jackson was the architect, and he has provided a modest structure simple in outline and expression. The disposition of reading-room, library and residence are unmistakable, and lie economically compact below one roof. The building comprises an admixture of Gothic and Classic features, of which the traceried panels of the angle piers and the sculpture of the gables are the main points of interest. A flêche would be a gain, for the building is already o'ertopped by most of its neighbours.

The New Kent Road is the poorer for the destruction of the Paragon, the greater part of which has been pulled down to make way for a board school and two rows of mean houses which, with an unusual regard for aspect, turn backyards towards the main thoroughfare. Some compensation is found opposite, where the St. Olave's and St. Saviour's Grammar School for Girls is approaching completion, a cheerful building of red brickwork roofed with grey-green slates.

A few years ago Nonconformist chapels were almost invariably acutely "Gothic." A complete change has taken place in this respect, and these structures are now often secular in appearance. The façade of such a chapel as



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that recently erected in the Old Kent Road reminds one somewhat of a corn exchange in a provincial town. It is, perhaps, difficult without the sculptor's aid to express the religious aim of a meeting-house as distinct from a church where the service would be of a liturgical character. In this instance the triple darknesses of the open arches and the frank expression of the structure within could hardly fail to produce a pleasing elevation, but it is a question whether the bringing forward of the gable upon the columns, thus adding to their function and deepening the setting of the window, would not have been an improvement.

On a small island site at the junction of Tooley Street and the Tower Bridge Approach is a branch of the London and County Bank from the designs of Mr. W. Campbell Jones (see next page). Each of its three elevations presents a pediment of different size, but carrying a similar bold cornice; below are two tiers of windows with coupled pilasters at the angles upon a ground storey of stone. Notwithstanding the rather unsuitable plinth of small random rubble and the use of false balusters as panel decorations, the whole structure is pleasing in effect. The iron framing below the dome is frankly shown and suggests a half-iron construction that may take the place of half-timber work, if only some absolutely fire- and heat-proof paint could be discovered.

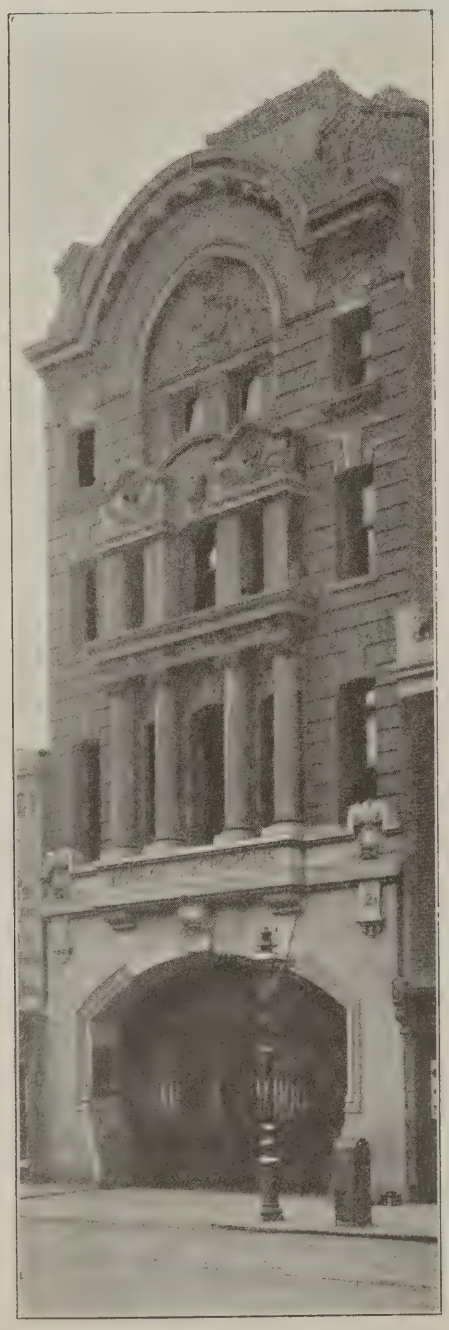
Few parts of London have been so distinctly improved within recent years as this corner of Bermondsey. The vista of the new southern approach road is terminated by the somewhat theatrical but still imposing archways of the Tower Bridge, while to the left Mr. Mountford's Grammar School buildings are well seen in all their fine colouring of mellowed brickwork and weathered Portland stone. A short distance westward in Tooley Street is the distillery of Messrs. Boord & Son (see p. 141), a building faced with picked yellow stocks and stone and red-brick dressings. The offices lie compact between circular turrets bound together by a string-course, becoming a cornice in the interval. These turrets, the entrance doorway, and the quality of the brickwork invest the structure with distinction even among bulky neighbours.

In these critical articles distinct buildings only have been considered, and no attempt has been made to generalize on the architecture of streets as a whole. Yet the study of the one leads on to, and is indeed incom-



ENTRANCE TO LIBRARY.

plete without, the other; and it is scarcely possible for an architectural student to traverse the thoroughfares of a modern city without it being impressed upon him that at no earlier period of the world's history have streets so appallingly mean and ugly been possible. Not that even most London streets are deserving of such epithets—a capital necessarily possesses so many architectural advantages over a provincial town. Cardiff and Hull are instances where the beauty is mainly a heritage of earlier times; Middlesbrough lacks even that endowment; but London possesses miles upon miles of dreary streets not only in the suburban districts but in those more central regions where factories and warehouses predominate—streets utterly devoid of charm except under occasional atmospheric conditions of mist or sunset glow. A hundred years ago factories and warehouses were never so repugnant, if only because they were lower and less crowded together. And there was generally a residence attached which lent some charm of greenery to the place, and the sun could penetrate most of the windows. Now, however, we often find pile upon pile of the coarsest brickwork erected with almost cynical indifference to mental health, and only so much consideration for bodily needs as the Building Act enforces.



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LONDON AND COUNTY BANK, TOOLEY STREET, S.E.
W. CAMPBELL JONES, A.R.I.B.A., ARCHITECT.

Is there a remedy for this state of things? Various suggestions have been made from time to time at the Royal Institute of British Architects and in books and journals dealing with the reconstruction of large towns. Paris is generally quoted in this connection, and even if the streets of that city strike us as somewhat monotonous and devoid of individual character as compared with our own, there are points of administration as practised there which we might surely adopt with advantage.

Mr. Arthur Causton, F.R.I.B.A., in his book on "London Improvements" wrote that —"In order that the Prefect of the Seine may be able to secure independent technical advice on architectural questions a standing council composed of experts is attached to the Prefecture and summoned as occasion requires. Thus it happens that when, at length, an improvement scheme is submitted to the Prefect, Paris can rely that his consent is fortified by the opinions of the leading architects of the country. That Parisian architects become thoroughly competent for the work that is required of them is insured by the excellent higher education provided by the municipality, and by the yearly expenditure of a moderate but regular sum for the promotion of fine arts, by means of purchase under a competitive system of designs for public buildings, and for other artistic works. This not only educates the popular taste but adds to the beauty and adornment of the city."

A few years ago, on the completion of the Rue Réamur, a jury of four architects and five municipal councillors awarded six gold medals to the architects, and remitted half the street dues to the owners of the six best designed façades in the new thoroughfare.

This "Concours des Façades" has become a recognised institution in Paris, and has been instituted lately in Marseilles. Few things appeal so much to the owners of buildings as a reduction of the rates, and certainly nothing gratifies an artist so much as the encouraging appreciation, or even only the interest, of his contemporaries. On this last ground, the writer hopes his remarks may not have been considered superfluous, even by those who may disagree with them.

Correspondence.

"A Groined Vault."

To the Editor of THE BUILDERS' JOURNAL.

MANCHESTER.

SIR,—Referring to the drawing of a groined vault published as a centre-plate in your issue for October 1st, should not the rise of the rib v v be 7in. lower than it is given?—Yours truly, F. SUTCLIFFE.

[The mistake to which you draw attention was not discovered till the block had been made, and it was not possible to alter it then. You will see, however, that the error is corrected in the explanation of the drawing given on p. 114 of the issue in question.—ED. B. J.]

S. AFRICA FOR ARCHITECTS' ASSISTANTS.

SALARIES AND COST OF LIVING.

A CERTAIN South African firm who, owing to the nature of their business, are brought into close touch with architects and the building trade in South Africa inform us that they can safely say there are many openings for good men in architects' offices. "The building trade in South Africa is exceedingly brisk at the present time, more particularly we think in Natal, and, of course, when normal conditions again occur in the Transvaal Johannesburg will provide many opportunites for architects' assistants. As it is probable that you will be receiving many enquiries on these matters, a few particulars may be of service.

Natal.

"In Natal salaries for architects' assistants range from £15 to £25 per month, according to qualifications and ability. Office hours are, generally speaking, from 9 a.m. to 5 p.m., with Saturday as a half-day; overtime and night work, which are sometimes necessary, are remunerated at discretion, but in many cases the monthly salary is considered to cover this, and is generally taken into account on making an engagement.

"Board and lodging cost about £8 per month.

"Durban, of course, is the business centre of the colony, the only other town of importance being Pietermaritzburg, the capital of the colony and seat of government. The climate, generally speaking, is considered healthy.

Johannesburg.

"As regards Johannesburg, under normal conditions the same remarks apply, excepting that the cost of living is considerably higher, and wages in proportion. For instance, board and lodging may be reckoned at about £12 per month and salaries from £20 to £40. The climate is considered to be better than that of Natal.

"It is not wise, however, for any man to enter South Africa (unless he has an appointment to come to) without having some funds to enable him to keep himself until such time as he finds employment, but our experience has been that good competent men never find any difficulty in obtaining situations."

Readers will find it interesting to refer back to the BUILDERS' JOURNAL for March 7th, 1900, in which issue a long article was published on "Johannesburg; before and after the War," by Mr. John Begg: and reference might also be made to the leaderette, by the same writer, in the issue for September 12th, 1900. With the aid of this information and that given above a very fair estimate can be formed of the possibilities of architectural and similar work in the new South African colonies.

Architecture in the Transvaal.

At the last meeting of the Transvaal Association of Architects, Ltd., in Johannesburg, an interesting address was delivered by Mr. E. B. J. Knox, the president. After referring to his connection with architecture in South Africa, which dates back to 1875, Mr. Knox alluded to the discovery of the Witwatersrand and the type of building then fashionable. "The first I can remember," he said, "was a reed hut, rapidly to be succeeded by a tin structure of more or less pretentious dimensions. Then came the mud-brick structure, the first of which was quite recently standing near the Ferreira mine, and is probably there still. The outer walls of this building are gorgeously supported with large stone and mud buttresses to prevent their tumbling out. This edifice was the locus of no less an institution than the Standard Bank. From that period building went forward in leaps and bounds, and when it is remembered that all the material excepting the stone and slop-bricks had to be brought by ox-waggon 400 miles or so, it is astonishing to observe the enormous number and size of the buildings that were erected in those days, some of which presented passable architectural treatment. On the approach of the railway to Johannesburg and Pretoria (making it possible to obtain superior materials for construction), and the development of the brick, lime, cement and stone industries, a new era in architectural life set in, resulting in the substantial piles of town buildings and innumerable suburban residences which we saw around us at the outbreak of the war. We are now, however, I feel assured, entering upon a fourth epoch in our history of building, which will call forth the best knowledge and experience in our profession to adequately deal with. Under the protection of the British flag there will be no uncertainty as to the security of tenure or like investment, and capital will flow into the country, not only for the purpose of multiplying the areas of our townships, but of replacing most of our effete and decrepit buildings with structures worthy of the coming age."

In conclusion, Mr. Knox uttered a word of warning to his fellow members in regard to ill-advised outside decoration, which might well be laid to heart in this country. "We should ever bear in mind," he said, "that whereas the doctor buries his mistakes, the architect erects them into ghastly monuments to haunt posterity."



DISTILLERY OFFICES, TOOLEY STREET, S.E. ASTON WEBB, A.R.A., ARCHITECT.

LONDON COUNTY COUNCIL.

THE YEAR'S WORK.

THE London County Council reassembled last week after the usual summer recess. The chairman, Sir J. McDougall, in the course of his annual address on the work of the Council, said that at the close of the year the Finance Committee was relieved of the duty, entrusted to it five years ago, of exercising financial control over the Works Department, as the Council decided to reconstitute a Works Committee, to which was now referred the carrying into execution of all works by direct employment of labour. During the year this department executed work to the amount of £411,411, and a statement of works completed during the year ended March 31st last, showed, in the case of estimated works, a balance of cost above final estimate of £7,200, and in the case of jobbing works a balance of cost below schedule value of £980.

Main Drainage: Some Figures.

The Main Drainage Committee supervised and advised the Council on the all-important work incidental to the disposal of the sewage and main drainage from an area of 140½ square miles, with a population of 5,137,435 persons. The magnitude of the work might be judged from the fact that 85,595 millions of gallons of crude sewage were chemically treated at the precipitation works last year.

B

This enormous volume represented an average flow of nearly 235 millions of gallons every day. The quantity of sludge taken to sea was the largest on record for any one year, and amounted to 2,479,000 tons, or nearly 48,000 tons a week. The nett maintenance expenditure was £246,694, which was equivalent to a rate of 1·63 in the £, while the outlay on capital account amounted to £175,920.

The growth of the population of London since the establishment of the main drainage system about forty-five years ago had, however, made it incumbent upon the Council to take measures for providing additional main sewer accommodation, and the special feature of the year's work had been the progress of the extension of the system. The expenditure voted by the Council previously to March 31st in respect of the scheme amounted to £1,263,000, but the final completion of the scheme, including the construction of large intercepting sewers from east to west of London and the provision of additional machinery at pumping stations, involved an estimated expenditure of £2,947,000. As a result of the Council's action in dealing with the sewage the condition of the Thames had so greatly improved as to encourage the Salmon Association to begin a series of experiments with a view to the reintroduction of salmon into the river.

Tunnels and Bridges.

The Bridges Committee had continued the care of the bridges, ferries and tunnels belonging to the Council. Blackwall Tunnel had been used during last year by double the amount of the traffic in 1898. In consequence of a settlement at the electric-lighting station necessitating repairs to the value of £3,700, the current for lighting the tunnel had been supplied for some months past by the Poplar Borough Council. The work connected with the Greenwich Tunnel had made considerable progress, and would probably be completed this month. The Thames Tunnel Act, 1900, empowered the Council to construct a tunnel under the Thames from Rotherhithe to Ratcliff. The scheme was being steadily advanced, about £77,000 having been expended in the acquisition of property. It was expected that the drawings for the construction of the tunnel would be completed by the end of the year, and the contract let in the early part of 1903. The total length of the tunnel would be 6,825ft., or about 1¼ miles, and the external diameter would be 30ft. (3ft. wider than the Blackwall Tunnel) — sufficient to obtain a carriageway of 17ft. in width and two footways each 4ft. 2in. wide. Vauxhall Bridge, so far as the work of reconstructing the piers and abutments was concerned, was rapidly approaching completion, and it was hoped that matters might be sufficiently advanced to let the contract for the superstructure in the early part of next year.

Street Improvements.

The Improvements Committee carried through the Council four important schemes, the nett cost of which was estimated at £462,552. These four schemes included the widening of Hampstead Road at the southern end, which would cost £225,500, of which the St. Pancras Borough Council would contribute one-eighth, and the widening of certain long lines of thoroughfare in Fulham, Deptford, Camberwell and Lambeth in connection with proposals to construct tramways, the local authorities concerned contributing part of the cost of the street widenings.

During the year one important improvement was completed—the construction of Tower Bridge Road, which formed the principal southern approach to the Tower Bridge from Old Kent Road.

Considerable progress had been made with the thirty-three schemes in course of execution. Of these the two most important were the new street from Holborn to the Strand and what was known as the "Westminster improvement scheme." For the Holborn-Strand improvement it was necessary to acquire property involving an expenditure approaching £5,000,000, but it was anticipated that the nett cost, after obtaining recoupment by disposal of the surplus land, would ultimately not exceed £774,000.

The Widening of Piccadilly.

Another improvement which demanded some notice was that of widening Piccadilly. The portion of the thoroughfare between Hyde Park Corner and Down Street had been widened by the Council upon the suggestion of the First Commissioner of Works. With regard to the portion of Piccadilly near the Circus, again and again the Commissioners of Woods and Forests (the freeholders of nearly the whole of the property on the north side of Piccadilly between the Circus and Sackville Street) had been urged, before granting new leases or renewing existing ones, to give the Council an opportunity of acquiring at reasonable cost the strip of freehold land needed for the widening, but the Commissioners had as yet not seen their way to assist the Council, and it would appear, therefore, that for the present the Council was precluded from carrying out the scheme.

Housing.

During the year undertakings were entered into which would involve a total expenditure of about £65,000 in respect of land and about £600,000 in respect of buildings and other works. There had been considerable difficulty in past years in providing accommodation for persons of the working classes without incurring to a slight extent a charge upon the rates. The committee now found itself in the position, after paying interest and capital charges, of having a small balance remaining to the credit of the Council. This result had been achieved by the strict economy of its staff and by the fact of having a housing manager to watch the outgoings with the greatest care. Good progress has been made with the development of the Totterdown Fields estate, Tooting, where cottages might be expected to be ready for letting in the late autumn. A new estate at Old Oak Common Lane, Hammersmith, had also been purchased. This estate was within the county, and its 50 acres would afford accommodation for about 9,200 persons. The Council had now about 348 acres of land acquired for "housing" purposes, at a cost of £217,000, and upon this land dwellings, chiefly cottages, for about 68,000 persons had been, were being, or would be built at a cost of nearly £3,000,000.

No Balconies in Narrow Streets.

The Building Act Committee recommended that the Council, in the exercise of its powers under section 73 of the London Building Act, 1894, should not consent to the erection of balconies at the second, third and fourth-floor levels of proposed premises for the Clerical, Medical and General Life Assurance Society, No. 1, King William Street, to overhang the public way of King William Street and St. Swithin's Lane, as, having regard to the narrowness of St. Swithin's Lane and the height of the proposed building, it was considered undesirable to sanction the erection of the intended balconies. This was agreed to.

Gangway Across Water Street.

The Building Act Committee recommended, and it was agreed, that the Council, in the exercise of its powers under sections 13, 73 and 82 of the London Building Act, 1894, but in no way otherwise than under such sections, should consent to the erection of an open iron and concrete gangway across Water Street, to connect warehouses on the east and west sides of that street.

THE ARCHITECTURE OF TO-DAY.

MR. ALFRED DARBYSHIRE, president for a second year of the Manchester Society of Architects, delivered the opening address of the session on Thursday last. He alluded to the establishment of a Chair of Architecture at Owens College. They were surrounded in Manchester, he said, with evidences of want of advice and control, as witness the architectural settings of their public statues and the artistic horrors and heraldic blunders made in the decorative efforts (including the Civic Hall) at a coronation time, or on other occasions of public rejoicing. There were many ways in which the knowledge and culture of a Professor of Architecture at the University would be of great value without in any way conflicting with the official control of the city architect. After dealing with architectural competitions and the need for proper and efficient assessment, Mr. Darbyshire spoke of the present development and practice of architecture and the probable condition of the art during the first quarter of the twentieth century. A fit and proper motto for the present condition of civilisation and movement was "Speed." This unseemly speed and competition had engendered a utilitarian spirit which dominated all city architecture. If a beautiful and refined façade were produced its lines and its architectural beauties were ruined and destroyed by huge signboards in the form of cut-out flaring gilt letters stuck on the elevation.

Speaking of science, let them consider what electricity was doing in the way of destruction of city architecture. Holdfasts for overhead wires were driven into and fixed on architectural façades without the slightest consideration for their artistic value. It was a matter of no consequence as to whether the buildings were public or private, and perhaps no greater instance of the hasty application of scientific requirements to the spoliation of architecture could be found than the present aspect of Albert Square, Manchester. It was a mass of electrical network. The fine elevations of Waterhouse were completely cut to pieces, and their beautiful lines destroyed.

The modern historian who wrote the chronicle of our own time would have to recognise a topsy-turvydom unknown in the world's history. England, after its past centuries of consolidation in art, literature and intellectuality, was now going at the speed which characterised the building up of the new Western world, whereas America was now consolidating in the realms of art, literature and intellectual culture. On this side of the Atlantic we did not hesitate to spoil our heart with the hideous application of scientific necessities. There was little respect for existing beauty. We even went to such lengths as painting white marble statues—and, he regretted to say it, in their own city too—although they were recognised as the works of great sculptors of byegone days.

Briefly, the architect of this new century had a condition of things to grapple with which would militate against the principles of beauty in architecture: and without beauty architecture became mere building, and only the exponent of science. It was a matter for serious consideration as to how their architects were to face this new condition of English civilisation. The struggle between the commercial and the beautiful would be fierce and its issue doubtful. They could only hope that under whatever new conditions and requirements architects would have to work they would, like the grand old Greeks, still love the beautiful, and so help to maintain through the coming ages the prestige of our Great Empire.

THE CRACKS OF VENICE.

A Special Correspondent's Report.

THE following are some extracts from a long report on "The Cracks of Venice," by a special correspondent, published in the "Morning Post" for October 7th:—

St. Mark's.

Accurate examination has led to the discovery of many minor defects and some important signs of decay. The bronze horses facing the Piazza must come down and be repaired. The mosaics of the Arch of the Apocalypse must also come down in order to admit of repairs to the framework of the arch itself. The exact extent of the damage is not yet known, but there is a long ugly crack in the mosaic at the centre of the arch, while the further end seems to be warped or forced downwards through some unexplained cause. Evidently the whole of it has moved, for the large window by which it is lighted has been dragged inwards to a distance of 6in. or 7in. From the galleries which run round the interior of the basilica it is easy to notice that other arches and cornices have sunk from their original positions, but these movements, like those of the pavement below, are not thought to be dangerous. Plans for a thorough overhauling of the basilica have been submitted to the Government, and within a few weeks Signor Manfredi, the new chief architect, hopes to be at work on the Arch of the Apocalypse.

The Doges' Palace.

As regards the Palace of the Doges, ordinary visitors will notice nothing remarkable except the remains of the Campanile arranged in the courtyard until they come to the great Council Hall. Here the species of wooden platform below Tintoretto's "Paradiso" has been moved from the wall, with the result that a number of cracks are disclosed in the wall itself. Some of these fissures run upwards beneath the boarding on which the canvas is stretched. Both boarding and canvas are to be moved, so that the wall may be carefully examined and strengthened. . . . . It is as yet uncertain whether the cracks in the wall behind the "Paradiso" are isolated signs of decay or are the effect of a general movement in the corner of the palace which contained the St. Mark's Library. It has frequently been said that the weight of the library was ruining the building and that the books ought at once to be removed to another spot . . . but it is a question whether the damage . . . is attributable solely to the weight of the books, or is a direct result of imprudent "improvements." The worst of these "improvements" was the making of a large perpendicular aperture in one of the principal internal walls in order to make room for a book-lift to save the librarians the labour of walking up and down stairs. Apart from the folly of cutting away a substantial part of such a wall, the operation itself must have shaken the building to its foundations. . . . . As a direct result of this proceeding the eastern wall of the palace, opposite the prisons, is beginning to bulge out, and the portion of the mutilated internal structure between the aperture and the eastern wall shows half a dozen long slanting cracks. On a wall thus weakened the weight of the books may well have had a serious effect, and the regional office has done well to empty all the shelves in the rooms concerned.

The Patched Mint.

The books . . . . will find a new home on the other side of the Piazzetta in the Palazzo della Zecca, or Mint. . . . "The Venetians are great patchers," a British resident in Venice recently remarked as he walked through the Zecca, "but I doubt if their genius for patching ever had such an opportunity before." The ground floor is comparatively secure, but the second and third are in such a state that one fears for his safety while he scrambles through the tumble-down passages. In more than one place the sky is visible between wall and ceiling; the body of the building seems anxious to go to the left and the western wall to the right. The place has been patched and restored out of all likeness to its former self by previous operators, but still the civil engineers seem to think it a fit subject for their skill. The climax of their scheme is to pack away the books in narrow and badly-lighted chambers surrounding the courtyard, and to turn the yard itself—built of stone in late Renaissance style—into the general public reading hall. The floor of the courtyard is not much above water level. It has a fine large well in the centre, surmounted by a marble head and a large iron pulley. This well it is proposed to leave intact. The courtyard is to be surrounded with a cornice and roofed over with glass, an arrangement which will effectually prevent the damp air of the well from escaping, and will still further darken the rooms in which the books are to be put. The beauty of this project will be apparent when it is considered that it is not necessary to turn the courtyard into a reading-room at all. Any library architect "worth his salt" would see the need of placing the large rooms overlooking the lagoon at the disposal of the reading public, and of assuring space, light and air for the books by amalgamating the two upper storeys and rendering the volumes accessible by galleries with glass floors as in the French Bibliothèque Nationale. The director and his staff, for whose benefit it is proposed to sacrifice the large front rooms, might find ample accommodation in any corner of the Palace.

The Old Procuratie,

or Colonnade, on the north side of the Piazza San Marco, has caused the regional office considerable anxiety. Some of the columns were found to be detached from the arches which they were supposed to support, and some of the arches were seen to be cracked and unsound. As the beauty of the Piazza is bound up with the preservation of this characteristic structure, steps were at once taken to prevent disaster. The rooms above the damaged arches, which had been filled with weighty goods by the shopkeepers who occupy the ground floor, were evacuated and propped up pending arrangements for proper repairs. There should be no great difficulty in restoring the Procuratie to a condition of perfect stability, but they will require to be watched much more closely than they have been in the past.

Sta. Maria Gloriosa dei Frari.

This great church tends unmistakably to fall asunder, as a result of the subsidence of the walls. The movement is more noticeable on the left than on the right, for on the left the massive Campanile has sunk at least 30 centimetres (about 1ft.) and has pulled outwards and downwards the portion of the transept and nave attached to it. Professor Ongaro . . . believes it possible to stop the movement by driving piles into the subsoil. . . . When this has been done some means must be found of bracing together the two sides of the nave so as to stop the splitting tendency. The work will be long and costly, but a good beginning has already been made, and there is no reason to doubt its successful completion.

The Damage at SS. Giovanni e Paolo

is still more evident and is more difficult to repair. In the first place, the architecture seems faulty, inasmuch as the walls run to a height of at least 80ft. without buttresses or other supports. . . . The nave is supported by ten huge columns. Former restorers have attempted to brace the nave together by transverse beams. One of these beams is now found to have snapped under the strain put on it by the subsidence and displacement of the walls. Other signs of dangerous movement in the masonry are only too apparent. . . . At the right end of the transept the wall has been so weakened by the removal of blocks of stone in order to make room for new shrines that it threatens to fall outwards. The great window on this side of the transept is being taken down so as to facilitate the restoration of the wall, and the offending shrines have been removed in order that their places may be taken by fresh masses of supporting masonry. But it is at the left end of the transept that the subsidence is most alarming. From the choir to the left corner of the transept the pavement slopes down so rapidly as to give one the sensation of walking down hill. The wall seems to have been weakened by the cutting away of masonry, and, like the opposite wall, threatens to fall outwards. How marked this tendency is can best be seen from the shape of the great corner column at the angle of the nave and the transept. From the pavement to a height of about 40ft. the column is straight, but near the capital it bulges out, and above the capital the arch resting on it bends in. The dimensions of the church are so great and the appearance of the architecture so light that it is hard to imagine how the masonry can be sufficiently strengthened without disfiguring the place, if, indeed, some disaster does not occur before the repairs can be effected.

Writing to the "Morning Post," Mr. George Wemyss says: "I allude to the steamer. When Venice, to the great Ruskin's horror, sanctioned the innovation of this desecrating craft on her silent waterways, she pronounced her own doom. . . . To make navigation practicable, therefore, for the steamer the dredger had to be employed. . . . The dredger set up under the sea among the ancient piles on which Venice stands a deadly but subtle process of disintegration—a process which has been silently continuing ever since. You cannot deal with sand as you can deal with mud or clay. You cannot take one grain of sand from a heap and not see that heap slip slowly back till that minute void has been filled up. . . ."

R.I.B.A. PROGRAMME.

THE following papers have been arranged for the forthcoming session of the Royal Institute of British Architects:—The opening meeting will be on Monday, November 3rd, when Mr. Aston Webb, A.R.A., will deliver his presidential address. On November 17th Mr. F. C. Penrose, F.R.S., Litt.D., will read a paper on "The Drawing of the Ionic Volute," and Dr. A. S. Murray, LL.D., will give a "A Note on a Fragment of the Parthenon Frieze." On December 15th Mr. Arthur Evans will give a paper on "The Palace of Knossos, Crete." At the meeting on January 19th the award of prizes and studentships will be announced, and a paper on "Science Workshops for Schools and Colleges" read by Prof. H. E. Armstrong. On February 2nd the president will deliver his address to the students and present the prizes. On February 16th Mr. Basil Champneys will read a paper on "College Planning," and on March 16th Mr. Charles Hadfield one on "Westminster Cathedral." On March 30th Mr. Horatio Porter will read a paper on "Fire Prevention," and the report by the Science Committee on the Fire Offices Regulations will be received. Mr. Edwin T. Hall will read a paper on April 20th, and the annual general meeting will be held on May 4th. On May 18th Sir Martin Conway will deal with "The Formation of the Ancient Style of Egyptian Architecture," and on June 22nd the Royal Gold Medal will be presented.

ROME ON THE STAGE.

MR. BEERBOHM TREE has so often gratified his patrons with costly and elaborate stage settings, that it is almost superfluous to say that the stage pictures in the production of "The Eternal City" at His Majesty's Theatre are quite up to the standard of this house for beauty and exactitude. We are aware that many critical people object to an elaborate *mise-en-scene* on the ground that it detracts attention from the play. Such a point, even if it were within our province, is too debatable to compass here; but it can at least be urged that a costly setting should have the crowning merit of accuracy.

In some respects the scenery provided by Messrs. W. Telbin and Joseph Hacker is better than in Mr. Tree's previous productions. The ancient and time-scarred walls of Rome have an appearance of genuine antiquity; the interiors do not seem to be fresh from the decorator's hands; and above all the atmosphere and colour of the Roman sky have been most realistically portrayed. But the struggle between stage requirements and truthful representation is clearly visible in several scenes, and notably in the first, "The Loggia of the Palace of Baron Bonelli," situated apparently at the Vatican end of the Borgo S. Angelo, overlooking the Piazza di San Pietro—a curious situation, indeed, for an ambitious and unscrupulous Premier who has scant respect or consideration for his venerable neighbour.

The loggia itself is but a roofed-in space between two wings of the palace, supported by columns on its open side, the whole of a severe Palladian type; but beyond it and fronting the building is a curious colonnade supported by coupled columns of a pronounced Romanesque type, showing plain and wreathed alternately on the façade. To reach this colonnade, which apparently runs round the building, one has to ascend three or four steps from the loggia proper, a proceeding that may be effective from a dramatic point of view but is exceedingly awkward when one considers the other rooms opening on to the colonnade.

David Rossi's apartments (Act 1, sc. 2), a hall in the Castle of S. Angelo (Act 3, sc. 2), a simple vaulted chamber, richly coloured, and the ante-room to the Pope's bed-chamber (Act 5, sc. 1) call for no comment. The gardens of the Vatican (Act 3, sc. 2) enable Mr. Telbin to realise a very beautiful distant view of the Vatican and St. Peter's without the trammels of dramatic necessity. Mr. Tree is also enabled to give an accurate representation of the curiously mediæval Papal ceremonial and etiquette which will surround the future Pontiff.

The studio of Roma Volonna, situated (in the play) on the lower slope of the Palatine Hill, serves as the scene for Acts 2 and 4. It is a lofty room, richly decorated in coloured marbles. On the side facing the audience is a large semicircular arch supported by cippollino coupled columns in antis; through the arch one looks down over sloping gardens upon the Colosseum. The use of coupled columns makes the wall unnecessarily thick, and the closing of this side of the room at night by electrically-worked shutters is unconvincing. We are told that the action of the play is in the future; certainly such a method of building is hardly justified by the winter temperature of Rome at present. In the soffit of the arch is a wrought-iron grille of rather pleasing design.

The last scene of the play—the loggia of the Castle of S. Angelo—is perhaps the least satisfactory. One cannot understand why the heroine, accused of murder—an ordinary crime, unfortunately — is under military guard in such a place. The view seen from the castle is not recognisable, and Hadrian's Mausoleum has disappeared. The only object of the scene seems to be the introduction of the disused passage of Pope Alexander VI. which is made use of by the Pope Pius X. of the play for the purpose of secretly visiting the heroine. But these few faults are more than atoned for by the general excellence of the rest of the scenery.

A.A. OF IRELAND.

PRESIDENT'S ADDRESS.

THE first general meeting this session of the Architectural Association of Ireland was held at Dublin on October 7th. Mr. F. G. Hicks, president, occupied the chair. Mr. Beckett, one of the hon. secretaries, read the annual report, in which it was noted with regret that the attendance at the classes last year was not all that could have been desired. In membership and finances the Association was in a satisfactory condition.

The prizes won during the past session were distributed by the president to the following successful competitors:—Institute prize, Mr. John Knox Vinycomb; Doolin prize, Mr. John Knox Vinycomb; Beckett prize, Mr. F. H. Tallan. Class of Design: first prize, Mr. F. H. Tallan; second prize, Mr. G. Hamilton Barlee.

The president then delivered his inaugural address. After referring with regret to the death of Mr. Walter Doolin, he said his remarks that evening would be chiefly addressed to the youngest members, for whom, indeed, the Association was primarily conducted.

Architectural Education: A Comparison between London and Dublin.

The education of students in the past had been practically nil; even now it was of a more or less haphazard and imperfect description, and the chief object of the Association was to promote and afford facilities for the study of architecture. The report to which they had listened was not, to his mind, as satisfactory as it should be, and it showed distinct evidence of waning enthusiasm not only in the attendance at ordinary meetings but also at the classes and in the competitions. Was it that the students had not realised what was chiefly required of an architect all through his life—self-denial and hard work and study; or was it that there was something wrong with their system of education? Possibly both these elements were at the root of the evil.

It took the London Association fifty years to discover that their educational system was not all that could be desired, and a revolution resulted in their present apparently complete and up-to-date system. The Irish Association had difficulties to contend with that they knew nothing of in London. Their little roll of 131 members, compared with London's 1,400, seemed ridiculously small, and any falling off in classes or meetings was at once apparent. Their very scarcity of members behoved each one to do his utmost to make their teaching a credit to Dublin in particular and Ireland in general.

An Aimless System.

One of the chief defects in their system was that it was practically aimless. They commenced each session with exactly the same kind of subjects, advanced a certain distance, and then stopped, except perhaps in the architectural history class. This was, to his mind, wrong. A student could not be expected to learn all there was to know about a subject in one session, and they could not expect him to go over the same ground year after year. If they were to be of any real benefit as an educational body they must formulate a proper curriculum of study spreading over two or three sessions, and at the end let there be a test as to what a man had learned. They could hardly grant diplomas, but something in the nature of a certificate might be given. He believed they should have qualifying examinations for candidates seeking admission to the Association.

The Decadence of Irish Architecture.

In his opinion the low state to which architecture as an art had sunk in Ireland was due in a great measure to the apathy of the Institute. The old architects formerly had not to contend with their difficulties. Such evils as the lowest estimate or completion within three months under a penalty were unknown. Let them study these old masters and get into their systems, so to speak, some of the poetry and imagination that inspired them.

One looked with sorrow at the ravages caused by the jerry-builder, and he regretted to say there were jerry-architects quite as much to blame. Ground landlords and corporations when granting building leases had the matter in their own hands, and it was often painful to see the utter indifference they displayed with regard to the design of buildings to be erected on important sites.

Reverting to the system of education, he thought their teaching staff was the weak point. Some slight changes were proposed during the coming session in the building construction class and that for the study of architectural history. Single responsible lecturers would conduct the course throughout the session instead of the group of instructors as hitherto. A very necessary addition to their system was a studio where students both young and old could meet at all times and work out their exercises and so forth. A studio would be hardly possible until they got premises of their own, and the sooner they faced that problem again and overcame it the better.

Sketching; Measuring; Construction; Design.

He regretted exceedingly there was no competition for the A.A. travelling studentship last session, to his mind the most valuable of all the prizes offered by the Association. If the young members for whom the prize was reserved only knew the value sketching and measuring old work would be to them in the future they would one and all compete. Too much attention could not be given to sketching, and a student (or a full-grown architect for that matter) should never go out without a sketch-book. Water-colour drawing from nature was an art all architects should be accomplished in—yet how many of them were? The crowning feature of an architect's education and the goal of his ambitions was design. Too much attention was paid to design in the early stages of a student's career, and other subjects were neglected without a thorough knowledge of which design was practically impossible. What was wanted to qualify them as good assistants was a thorough knowledge of construction, ornament and detail, and good and careful draughtsmanship.

Mr. C. J. M'Carthy, in proposing a vote of thanks, said their president was one of the rising architects, and his connection with the Association was sure to bring credit to it in every way. He might mention that out of eight competitors Mr. Hicks had been selected to design the new market which Lord Iveagh was about to build at his own expense and which he intended to present to the citizens. As one of the assessors he (Mr. M'Carthy) desired to congratulate Mr. Hicks on his success. Architectural education in Dublin was sadly neglected, and required immediate attention. He thought the new Department of Agriculture might be able to do something in this direction. If a technical school for commercial education could be started under the department in Rathmines, he thought many of the subjects with which architects were supposed to be acquainted should also be taught in the same way. Mr. G. P. Sheridan seconded the vote of thanks, which was passed, and the president having replied the proceedings terminated.

Bricks and Mortar.

Aphorism for the Week.

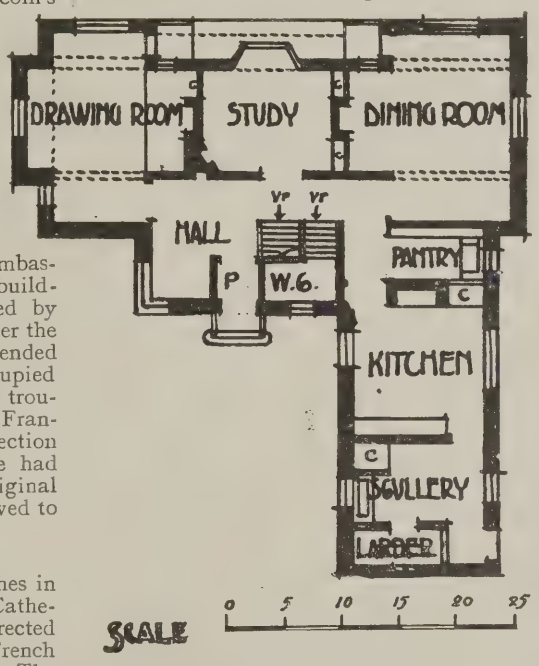
My definition of a work of art would be . . . a corner of creation seen through a temperament . . Art is a negation of society, an affirmation of the individual, outside all rules and all social necessities.—Emile Zola.

Our Plates. Aldershot Vicarage is built of red bricks with a tiled roof; the bays are of Portland stone. It replaces a house which was too small for the parish, and which was in a dilapidated condition. It stands in an old garden, and is backed by some fine beech trees. The builders were Messrs. Martin, Wells & Co., of Aldershot. Mr. Charles Spooner, of Holford, Bridgewater (and 17, Red Lion Square, W.C.), was the architect. The drawing was exhibited at this year's Royal Academy.—The view of Ghyll Cottage, Goudhurst, Kent, is taken from the garden side. Plans, &c., of the cottage were given in our issue for April 17th, 1901. The drawings were made for a selected site level in itself, but high up and commanding an extensive view. Compactness and strict economy were required and local materials only were to be used. Difficulties about water supply that existed at that time eventually caused the abandonment of the scheme.

Chapel of the Sardinian Ambassador. The Roman Catholic Church of Saints Anselm and Cecilia, in Sardinia Street, Lincoln's Inn Fields, is to disappear for the new Holborn-Strand street now making steady advance in that direction. The church is one of the oldest Roman Catholic churches in London. The church when originally founded was attached to the residence of the Sardinian Ambassador, on the west side of Lincoln's Inn Fields, and the only way into it led through his house. In the Gordon Riots of 1780 the house of the Ambassador and this chapel were the first buildings attacked and partially destroyed by the mob. The church was rebuilt after the riots had been suppressed, and was extended westward over the ground formerly occupied by the Ambassador's stables, and in the troublous times of James II. a body of Franciscan Friars was established in connection with it. Inigo Jones is said to have had a hand in the designing of the original church, and the sanctuary of it is believed to be the remains of his work.

Frescoes Destroyed at Moscow. One of the finest churches in Russia is the Moscow "Cathedral of the Saviour," erected to commemorate the expulsion of the French in 1812, and only consecrated in 1883. The interior walls of the sort of cloister which surrounds the whole edifice are panelled with huge marble slabs bearing the names of all the officers and the regiments, squadrons, sotnias, &c., engaged in the campaigns of 1812 and later in the Napoleonic wars. The upper walls of the cathedral and the entire space behind the magnificent altar are covered with frescoes illustrative of the history of the Russo-Greek Church and scenes from the Gospels. A sensation has been caused by the discovery that a very large proportion of these splendid frescoes are rapidly decaying. The picture by Semiradskiy, in a semicircular niche behind the high altar, which represented the "Last Supper," and was the chief glory of the cathedral decorations, has entirely disappeared, and its place is taken by a copper or brass panelling, upon which a new picture will be painted. According to the accounts of experts who have examined the frescoes, a similar fate awaits the entire series at no distant date. It appears that, instead of being painted on the prepared face of the solid wall, a curious device was adopted to get a surface for the artist. Light metal network screens were bolted on to the walls, leaving an appreciable interstice, and upon these the fresco-face for the painter was prepared. What has been going on in the interstices behind the pictures does not seem quite clear. But behind the destroyed fresco of the "Last Supper" were found all sorts of half-rotten rags and rubbish, and an appreciable dampness was discovered on the wall itself. Probably this irreparable injury to what is certainly the finest monument of the Napoleonic epoch in Europe is sufficiently accounted for by the dampness behind the painted surface combined with the heat to which the frescoes are subjected from the lighting of the innumerable tapers burned in the cathedral on all festivals.

The Capitol at Washington. The "Scientific American" asserts without reservation that the Capitol at Washington is soon to be extended, on the east side, by the addition of a mass of building connecting the present wings and entirely covering the old sandstone front between the wings, which will be visible only in the courtyards. It seems that the late Dr. Walter, the architect of the dome and of the wings, left plans for such an extension as is now contemplated, which are to be carried out substantially as he left them, some changes only being made in the arrangement of the rooms. Dr. Walter's design for the new middle portion suits admirably the noble, almost romantic dignity of the wings, besides adding much to the effect of the dome.



GHYLL COTTAGE, GOUDHURST, KENT.
ARTHUR T. BOLTON, ARCHITECT.

York Minster. Practically the whole work of restoring the north-west tower at York Minster has now been completed, and the scaffolding is being removed. This third stage of the work, now completed, has been the most expensive owing to a series of elaborate buttress gablets, niche heads and pinnacles. Up to August the carver had carved 2,058 crockets, 118 birds, 62 grotesques. 61 finials, 87 gargoyles and a number of bosses. No less than 6,608 cub. ft. of stone have been used. The condition of the stained glass in the chapter-house now demands speedy attention. Mr. Grylls, of Burlison & Grylls, Newman Street, Oxford Street, London, the expert called in to advise as to the chapter-house windows, states in a communication to the architect (Mr. Bodley, R.A.) that the stained glass is in a most deplorable condition. He says:—"The glass is corroded to an extent that in forty years' experience he has never seen before. The whole of the glass is crumbling into dust, daylight is showing through in many places, and quite a large quantity of the glass is as thin as tissue paper, and breaks at the slightest touch. In the first place minute holes are formed, which enlarge until they meet, and the whole surface becomes eaten away. All the 'decorated' glass in the cathedral is corroding in the same manner. The chapter-house windows are a little earlier, and are in the worst condition, but there is no doubt that unless something is done to protect the outside surface from the atmosphere before very long the nave windows will be in the same condition." A commencement has already been made with the staging for the restoration of the south-west tower.

Cecil Rhodes and the Picture-Dealer. A French newspaper, "Le Journal," relates that Cecil Rhodes by his will left a sum of 50,000 francs (£2,000) to an eminent Parisian picture-dealer under the following curious circumstances. Rhodes took a fancy to a small picture by Rembrandt for which the dealer asked £600. This sum Rhodes was not prepared to pay, but proposed an arrangement by which if the dealer died before Rhodes he should leave the picture to Rhodes by will, and if Rhodes died first the dealer should have £2,000. This arrangement, it is said, was actually carried out and Rhodes for once in his life—or shall we say in his death—lost.

A Monument at Boulak, Cairo. M. Denys Puech, the eminent French sculptor, has recently completed the model of the monument to be erected by the Egyptian Government to the memory of Mariette, the distinguished Egyptologist, to whom we owe the discovery of the Serapeum or the temple of the god Apis, the excavation of the Sphinx, the creation of the Egyptian Museum at Boulak, near Cairo, &c. This monument, which will be erected in front of the Boulak Museum, will embrace an extensive basement of grey granite, in the centre of which will be placed the bronze statue of Mariette on a pedestal of black marble. The distinguished man is wrapped in an overcoat, in a meditative attitude, with the right hand resting on a fragment of Egyptian sculpture. In front of the pedestal will be placed the actual tomb of Mariette, which is at present at Memphis and consists of a sarcophagus of pink granite discovered among the ruins of the Serapeum, which, after having enclosed for centuries the bones of the sacred bull Apis, now serves as the last resting-place of the eminent French archæologist. The transfer of the sarcophagus will take place at the close of the year 1903, a short time before the inauguration of the monument, which it is expected will be accomplished in the month of January, 1904. Mr. Maspero, a pupil of Mariette and his successor at the head of the archæological department of the Egyptian Government, will visit Mr. Puech's studio in order to advise him before the finishing touches are given to the model of the monument.

At St. Hildeburgh Church, Hoylake, a stained-glass window is to be erected at the west end. A new carved oak pulpit on a marble base will also be provided for this new church, and the north wall of the chancel is to be panelled in oak, on which will be painted a representation of St. Hildeburgh with angels.

LADDERING TALL CHIMNEYS.

By B. WYAND.

OF recent years several appliances for "laddering" tall chimneys have been put on the market, but amongst the majority of steeplejacks (which term usually includes chimney and spire restorers and lightning-conductor fixers) the older and more practical methods still obtain. It is proposed in this article to give an outline of one of the more common of these ready means of climbing giant chimneys with scaffolding for the purpose of executing repairs or other work.

The outfit consists of ordinary wooden ladders from 15ft. to 20ft. long, sundry 9in. to 12in. iron dogs (see *a a* Fig. 1), rope lashings (*b b*, Figs. 1 and 3) and a block and fall. To the top of each ladder are fixed projecting pieces of wood, known as distance pieces (*c*, Fig. 1), which serve to keep the ladders away from the brickwork when fixed and give the workmen secure foot- and hand-hold.

The fixing of the first ladder (Fig. 1) is an easy matter. It is reared against the shaft, and two dogs are driven into the brickwork, the first about 4ft. above ground-level and the second at about the same distance below the top of the ladder. To these dogs it is then securely lashed.

This length having been fixed, a second ladder is placed against the first and from this a dog is driven into the brickwork (Fig. 2) at about the same distance of 4ft. above the top of the first. To this dog the block is lashed, one end of the fall being made fast to the middle of the second ladder, which is then hauled up by the workmen on the ground until it is in the position shown by dotted lines in Fig. 2. It is then temporarily lashed at its foot, and thus secured in two places it can be mounted and a further dog driven in higher up. The block having been shifted to this dog (Fig. 3), the ladder is again hoisted, such further dogs as may be considered necessary are driven in, and the whole ultimately lashed (*b b*) and rendered rigid. Only two dogs to each ladder are shown in the figures, but it must be understood that these are in pairs.

Many tall chimney shafts have heavy projecting cornices some little distance below their caps, and these must be scaled by means of what a sailor would call "futtock" ladders. The method is simpler than it looks; it is clearly delineated in Fig. 4. The ladder immediately below the cornice is first made extra secure by additional dogs in order to allow for the strain to be placed upon it by the backward throw of the futtock ladder. The latter is then lashed as shown in the figure, and, the top of the cornice reached, the last ladder is fixed. To this further lashings are made, and the job is complete (Fig. 5).

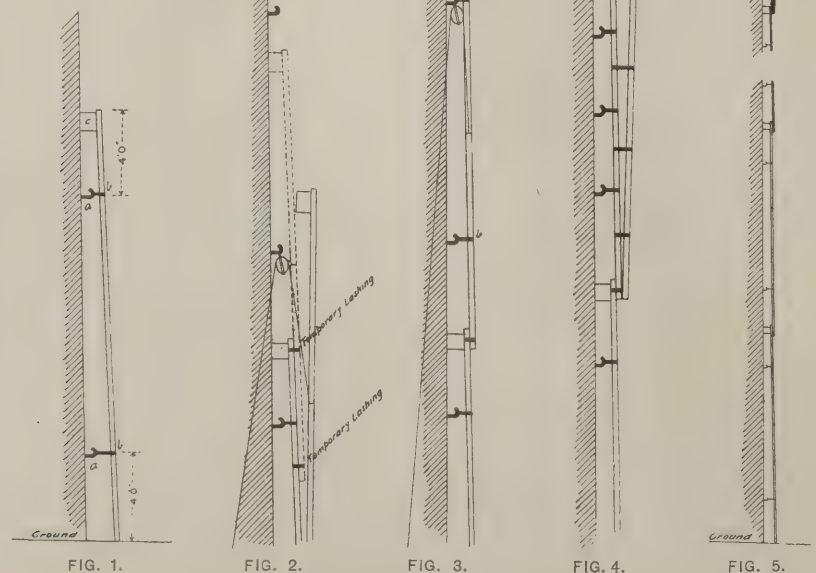


FIG. 1. FIG. 2. FIG. 3. FIG. 4. FIG. 5.

LADDERING TALL CHIMNEYS.

Engineering Notes.

Mr. Charles Gandon, M.I.C.E., late engineer to the Crystal Palace Gas Co., Ltd., died last Wednesday at the age of sixty-five years.

Award to Messrs. Ewart & Son, Ltd.—The committee of the Sanitary Institute at the Health Exhibition recently held in Manchester have awarded to Messrs. Ewart & Son, Ltd., of 346-350, Euston Road, N.W., a medal for the efficiency and safety combined in their well-known "Lightning" geyser.

A new Water Scheme for Margate.—The first sod for Margate's new waterworks was cut on Friday last. Water is to be brought from a place near Wingham, a distance of sixteen miles inland, at a cost of over £70,000. The scheme is being carried out under the direction of Mr. Albert Latham, and by the end of next June the work will be sufficiently advanced for the town to be supplied with 2,000,000 gallons a day from the new source.

The Society of Engineers held a meeting on October 6th (Mr. Percy Griffith, president, in the chair), when a paper was read on "The Hennebique System of Ferro-Concrete Construction" by Mr. Augustus de Rohan Galbraith. The following examples were given of the cost of the Hennebique system as carried out in different structures:—The Chatellerault Bridge, £18 12s. per lineal ft.; a grain warehouse at Plymouth, 4½d. per cub. ft. of space; a flour mill at Swansea, 4¼d. per cub. ft.; grain silos at Swansea, 6¼d. per cub. ft.; and some coal hoppers at Portsmouth, 7¼d. per cub. ft.

Enquiries Answered.

The services of a large staff of experts are at the disposal of readers who require information on architectural, constructional or legal matters. Questions should in all cases be addressed to the Editor. The querist's name and address must always be given, not necessarily for publication.

Checking Dry Rot.

STOKE-ON-TRENT.—C. G. C. writes: "I notice that a weak solution of vitriolic acid with water is recommended in 'Gwilt' as likely to stop dry rot. Kindly give your experience as to the effectiveness of this remedy and the proportion of acid and water to be used."

Dr. I. Bayley Balfour, Regius Keeper at the Royal Botanic Garden, Edinburgh, has been kind enough to furnish us with the following reply to the above query: "The solution mentioned by 'C. G. C.' would not be of much use in checking the dry rot. A great many different solutions and substances have been tried from time to time, but none of them have proved to be of permanent value. Among the various substances tried creasote has been found to be the best, but even this is not permanently efficacious. A simple disinfectant against the dry-rot fungus has not yet been discovered, and according to the best authorities there never will be such a substance invented. Thorough ventilation and dryness is the best means of preventing the spread of dry rot, because, as is well known, the damage is caused by a fungus growing in the wood, and this saprophyte cannot live in the absence of moisture."

Details of Steel Roof-Truss.

BIRMINGHAM. — ANXIOUS writes: "The accompanying sketch (not reproduced) shows the outline diagram of a roof-truss for a span 59ft. 6in. in the clear, trusses 13ft. apart, to be built up of best English steel. (Two designs of framing omitted, with numerous sizes.) Are both designs constructionally correct? Which would be the better from the point of view of good construction combined with economy? Which method of wind-bracing is preferable?"

It is impossible to say that all parts are correctly proportioned without going through the detailed calculations for both trusses. The principal rafter should be deeper than its width if there is any choice of section. The flats for ties should be wide enough to allow for loss of metal by pin and rivet connections. The smaller members should be made rather heavier than necessary, in order to reduce the number of different sections employed. The wind-bracing is only required on exposed roofs; and when rods are crossed in the bays between main struts for this purpose no horizontal member is required at the bottom. It is a matter of choice whether these ties, or ties on the back of principal rafters, be used. The truss shown is an economical form for spans from 45ft. to 60ft. The purlins must always rest on a principal rafter over a strut.

HENRY ADAMS.

Some New London Buildings.

SUNDERLAND.—R. G. K. writes: "I am going to Durban, but on the day before I sail should like to see one or two good buildings in London—offices, banks, town halls, &c.—inside as regards finishings. Kindly name a few."

Presuming you mean new buildings, we should suggest your visiting the offices at the bottom of Fleet Street (on the right going towards St. Paul's) by Mr. Huntly-Gordon, and another block by the same architect in Cannon Street (on the left going towards the station); they are both of red brick with plain stone dressings. No. 5 Newgate Street (Mr. C. Stanley Peach, architect), might also be

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CHARLES SPOONER, ARCHITECT.

"INK-PHOTO." R. J. EVERETT & SONS, 56 LUDGATE HILL, E.C.



"INK-PHOTO." R. J. EVERETT & SONS, 56 LUDGATE HILL, E.C

GHYLL COTTAGE, GOUDHURST, KENT. ARTHUR T. BOLTON, ARCHITECT.

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VULCAN BUILDINGS, UPPER THAMES STREET, LONDON, E.C. CHARLES REILLY, F.R.I.B.A., ARCHITECT.



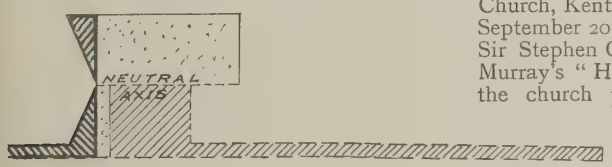
"WOOD RISING," RYE, SUSSEX. PHILIP TREE, F.R.I.B.A., ARCHITECT.

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visited. Then there are several new blocks of offices in the neighbourhood of Moorgate Street and Finsbury Pavement. As regards banks, you might inspect that of Messrs. Barclay & Co. at the top of Fleet Street (Mr. Reginald Blomfield, architect) and the British Linen Co.'s bank in Threadneedle Street (Mr. J. Macvicar Anderson, architect); while as an example of a modern town hall there is Mr. Hare's at Shoreditch. The interior of the Hotel Russell, in Russell Square, W.C., might be visited. You do not mention churches, but a visit should certainly be paid to the new Roman Catholic Cathedral off Victoria Street (near the bottom); and Mr. Beresford Pite's new church in Brixton Road is also well worth a visit. It is impossible, however, for you to see very much in a day, and it will perhaps serve your purpose better to go by 'bus from the West End to the East End *via* Fleet Street, and back by Holborn, getting off to inspect any special new buildings which interested you; and in this connection we would specially refer you to our series of illustrated articles on "Recent Street Architecture in London," the last of which appears in our present issue. The first was published in the issue for February 19th last; No. 2, April 16th; No. 3, June 4th; No. 4, July 2nd; No. 5, July 30th; No. 6, August 20th.

Calculating Strength of Concrete and T-Iron Floor.

J. W. B. H. writes: "In a portion of a concrete and **T**-iron floor considered as a beam, what is the method of calculating the M of the **T**-iron in the lower half? The concrete by itself is quite simple to calculate from the formula $\frac{1}{6}$ *ro bd²*, *ro* being taken at 400lbs. per sq. in. in compression and 4lbs. in tension. But when the **T**-iron enters into the question, for tension, to what point are



the centres of gravity taken and what is the length of the arm of the couple? Will the following be correct, for instance, for the flange:—

Effective area of flange, say,	Limiting stress of iron in tension.	Dist. between c. of g. of flange and c. of g. of upper part of concrete.
(2⅞in. × ½in.)	× 11,200lb.	× 4¼in. = M of flange."

Draw to scale a sectional representation of the strength of the concrete and iron beam, *i.e.*, showing the compressional strength above the neutral axis and the tensional strength below it. The drawing may first represent the strength of the concrete alone; then the additional strength due to the iron may be added, as shown by the accompanying illustration. The speckled area above the neutral axis shows the strength of concrete alone to resist compression; and its strength to resist tension is shown by the speckled area below the neutral axis. The light shaded area on the right side of the diagram below the neutral axis shows the strength of iron alone to resist tension. The effective resistance of the beam, resulting from the combined strength of its two materials multiplied by the leverage about the neutral axis, is shown graphically by the darkly-shaded figure on the left side of the diagram. Reference to this left side of the diagram will show that without the iron bar the compressional *resistance* of the concrete beam would largely exceed its tensional resistance, the latter being represented on the diagram by the mere thickening of the vertical line towards its lower end. But by incorporating the iron bar the tensional resistance of the beam largely exceeds its compressional resistance, as the figure shows. The above diagram agrees by scale with the dimensions and strengths stated in the query.

FRANK CAWS.

Graphic Statics: Chimneys.

SOUTHPORT writes: "(1) Kindly name an elementary book on graphic statics. (2) Also one dealing with brick chimneys for factories, &c. (3) Which are the three or four highest chimneys in the world?"

(1) G. S. Clarke's "Principles of Graphic Statics." (2) "Boiler and Factory Chimneys," by R. Wilson (3s.), and "Chimney Design and Theory," by W. W. Christie (12s. 6d. nett). These books can be obtained from Mr. B. T. Batsford, 94, High Holborn, W.C. (3) See reply to an enquiry on p. 459 of our issue for January 16th, 1901.

Books on Stone Carving.

SUNDERLAND.—ENQUIRER writes: "Where can I get a good book on details of stone carving, not stone construction?"

"Details of Gothic Architecture," by J. K. Colling; "Italian Ornament of the XVth Century," by Professor Nicolai; "A Handbook of Ornament," by F. S. Meyer (10s.); "The Historic Styles of Ornament," by H. Dolmetch (25s.). They can be obtained from Mr. B. T. Batsford.

Stone Church, Kent.

SOUTHPORT.—STUDENT writes: "Having drawn the spandrel from Stone Church, Kent (from cast), for a testimony for the intermediate examination R.I.B.A., I should be glad if you could furnish any particulars as to its position in the church, and size, and also a description of church itself."

Particulars and descriptions of Stone Church, Kent, will be found in our issues for September 20th, 1899, and October 4th, 1899; Sir Stephen Glynne's "Churches of Kent"; Murray's "Handbook of Kent"; a guide to the church published by Canon F. W. Murray, The Vicarage, Stone, near Greenhithe; "Illustrations of Stone Church, Kent," by Edward Cresy (published for the Topographical Society by H. Hooper, Pall Mall East, 1840); the "Builder" for February 11th, 1882; and there is a short description with complete measured drawings in Cavelar's "Gothic Architecture," Part IV. (1835). You will probably be able to identify the drawing from these works.

Spink's "House Drainage."

LONDON, N.—E. A. J. writes: "Where could I obtain a copy of Spink's 'House Drainage,' as it is now out of print?"

We do not know where a copy of the book may be obtained. Mr. Batsford cannot supply one, nor hold out any hope of obtaining a copy.

Building a House.

CHORLTON-CUM-HARDY.—W. H. writes: "I propose to build a £50 house in the suburbs of Manchester, and should be glad to know the best way to proceed. I want a small house—say, two entertaining-rooms and about four bedrooms, with modern fittings, &c.—suitable for a bachelor or a man and his wife with one servant. I should like a billiard-room added. I have no experience in erecting houses."

You will need to engage an architect to prepare designs to suit your requirements and to superintend the erection. He will require payment at a per-centage on the cost, usually five per cent. Your best plan is to engage the architect of any house in the locality which you consider nearest suited to your needs. If you are unacquainted with the ability of the architect you think of engaging, or cannot obtain an opinion from someone who has engaged him, you had better fall back on a member of the Royal Institute of British Architects.

Books for Surveyors' Institution Examinations.

CHESTER.—P. L. D. writes: "What books do you recommend for (1) trigonometry, (2) book-keeping, (3) mensuration, (4) fixtures, (5) dilapidations and (6) easements and light and air—for the Professional Associateship Examinations, Surveyors' Institution?"

(1) "Elementary Trigonometry," by J. B. Lock (Macmillan & Co., Ltd., price 4s. 6d.). (2) "Specification No. 5" (published at these offices). (3) "Mensuration and Measuring," by T. Baker (Crosby, Lockwood & Son, price 1s. 6d.). (4) "Fixtures," by Sidney Wright (Batsford, 5s. nett). (5) "Dilapidations" by Prof. Banister Fletcher (Batsford, 5s. 6d.). (6) "Digest of the Law of Easements," by L. C. Innes (Batsford, 6s. 6d.).

Steel Joists in Concrete.

NEWCASTLE-ON-TYNE. — A. R. writes: "Should steel joists embedded in concrete floors be painted, or is the concrete sufficient protection against corrosion?"

Cement is one of the best preventives of corrosion of iron. If the joists are painted, there will not be that required adhesion between the concrete and the iron.

HANDICRAFT.

AN exhibition of work done by the Guild of Handicraft was opened on Monday at the Woodbury Gallery, 37, New Bond Street, W. This Guild seeks to take a middle course between the ultra-individualism of the artist on the one hand and the trade shop on the other. For the last fourteen years the Guild has been working at Essex House, in the east of London, but this year a move has been made to the remote village of Campden, Gloucestershire. The workshops are in one of two gabled "islands" that stand in the High Street, the printing-room being on the ground floor, the metal shops on the middle floor, and the cabinet and carving workshops on the top floor; while in a different part of the grounds is the timber store and the power-house where the rough wood is sawn and the electricity is generated for lighting the shops. This, then, is the place where the work is produced. The work itself can be seen in the exhibition. Mr. C. R. Ashbee, the moving spirit of the Guild, has prepared a great many of the designs—a soup tureen, a writing cabinet, enamels, &c., and, as strictly architectural work, the additions to Womburne Wodehouse, Wolverhampton. Some of the woodwork is beautifully inlaid and finished, and much of the jewellery is pleasing. Mr. Charles Spooner shows a design for a rood screen at St. Anselm's, Pinner; and a large model of a house by the sea, designed by Mr. Ashbee, also attracts attention, with its central courtyard and its terraces. A fine series of Coronation drawings is hung on the walls, among which are depicted the ten imps of progress—criticism (a grey beast with green eyes and antennæ), enterprise, evolution, revolution, radicalism, jingoism, L'Art Nouveau (a commercial-looking creature and of temperament hermaphroditic), neurosis, vandalism (dressed somewhat as a small grocer in holiday attire, but with wings that are not serviceable for flying), and, lastly, self-complacency. The exhibition is well worth a visit.

New Wesleyan Sunday Schools at Douglas, I.M., have been erected at a cost of about £3,000. The principal elevation faces Victoria Street, and the other Wellington Street. The contractor was Mr. Robert F. Douglas, of Brunswick Road, Douglas.

WIRE-GLASS WINDOWS.*

By EDWARD F. CROKER, Chief of Fire Department, New York City.

IT is manifest to all thoughtful minds that the phenomenal development of the real estate values in our cities has made the tall building a necessity, and this necessity has brought with it the need of adopting in building construction barriers to conflagration, and there are to-day buildings capable of enduring without structural injury the action of fierce, long-continued interior and exterior flames and the application of cold water upon their heated surfaces. Structurally a building of this class is admirable—the foundations are secure, the walls and roof fireproof, but openings in walls and roof are necessary to render it habitable. Obviously the vulnerable parts of the building are these openings in walls and roof—its doors, windows and skylights. To these openings the spread of flame is almost wholly attributable. This has been the history of so many destructive conflagrations that experts have long agreed that no structure in a closely-built city can be considered even approximately secure against fire so long as it is provided with only ordinary windows, skylights and doors. My experience and observation have been such as to justify this opinion, and I have most strenuously maintained that the quantity of wood contained in what I have termed "a structurally fireproof building," taking into consideration also the furniture and fittings, would in the event of fire endanger the property and the lives contained within it.

Metal Shutters.

Shutters of iron or of metal-covered wood may protect windows if they are carefully closed, but in practice such shutters fall short of the purpose for which they were intended. When the crisis comes the shutter is frequently found open. Under the most favourable conditions an iron shutter at a fire is not the thing that the firemen want to come in contact with. Its rusty fastenings and blistering sides are objectionable, to say the least, and its reach when it swings open is liable to knock a man off the ladder. This is a risk to which the fire-fighter should not be subjected.

The Best Fire-Stop.

Wire-glass is, in my opinion, the fire-stop for window and skylight openings—wire-glass set in metal frames. It supplies the requisite light and ventilation as well as protection against fire; its installation obviates the necessity of the cumbersome and unsightly hinged shutters and the projecting lugs and adjustors which support and secure them. It affords protection regardless of the janitor's neglect, because the thought of fire is not necessarily present in the mind of the tenant to induce him to close the window-sash, and when closed it prevents the ingress, egress or communication of flame. It enables the fire-chief to grasp the situation and direct his men intelligently. The location and volume of the blaze are immediately disclosed, and if the conditions warrant it the fireman can effect an opening for the stream with his fire-axe.

Succinctly stated, wire-glass has yielded two fixed values as its contribution to fireproof building construction. It retards fire without hiding it—permits the blaze to declare itself. It can be cracked, but it cannot be scattered. If fractured it retains its place.

Quick Fire Location.

Now, we have to remember what we dare not forget, and we are mindful, therefore, of experiences which enable us to fully appreciate the value first stated. Of the many embarrassments to which the fire-fighter is subject, that which prevents fire from disclosing its position in its incipient stage is the most serious . . . . Upon arriving at a fire we are frequently confronted with tin-covered and iron-clad shutrers which obstruct our vision and our efforts to locate and conquer a blaze which becomes a conflagration because of the precious moments lost in concentrating our energies upon the seat of trouble.

This condition has long been a serious menace in all cities, and it is now intolerable, because the installation of wire-glass presents no technical difficulties. It is of acknowledged efficiency and is no less economical than effective. It has withstood the severest tests, and its cost is well within the means of all building owners. The insurance companies give "preferred" rates when it is installed and thus practically invest in it. Their scheme is to reduce hazards, and in the belief that wire-glass effectually accomplishes this they induce its adoption by substantial endorsement. The significance and overwhelming argument in favour of wire-glass as a fire-stop is the fact that when fractured it retains its place and continues to retard draught and its attending flames.

Wire-Glass under the Test of a Fierce Fire.

The fire which destroyed the Armour Lard Refinery, Union Stock Yards, Chicago, threatened for a time the entire district. Chief Musham was present, and he has stated that the wire-glass in the windows of the several walls prevented any communication through them and demonstrated the ability of wire-glass to prevent the spread of flame. The building destroyed was of recent construction, 100ft. by 400ft., five storeys in height, and subdivided into four sections by fire-walls, two of which were completely destroyed. The quantity and nature of the material in combustion—refined lard—resulted in the hottest kind of a fire, and its intensity and duration are hardly comprehensible. The chief tells me that the flames reached to a height of 150ft. above the roof, and the combustion was so perfect that scarcely any sparks were observed.

I am quoting Chief Musham because I think, perhaps, his observation of wire-glass in this instance was under a better condition than can be conceived for an actual service-test of wire-glass. The entire interior of the building was of inflammable construction, made more so by being saturated with lard, and its five great floors were loaded with tons of this highly combustible product. Tanks containing thousands of gallons of rendering were exploded and their contents dashed against the walls and windows, and the intensity of the heat was so great that the walls holding the frames and sashes which accommodated the glass crumbled, but until they fell the wire-glass retained its place.

This fire establishes conclusive proof of the efficiency of wire-glass as a fire-retardant and its staying qualities, and for the purpose of illustrating my subject I have considered it preferable to my own experience.

A Criticism.

"But wire-glass is not subjected to a fire test every day, and except when fire is present it has undesirable, even dangerous, qualities"—thus the editors of the "American Architect" begin a criticism of Chief Croker's remarks. They continue: "When the Engineering Experiment Station has time to study wire-glass, it will find in the many acres of this material at the South Terminal Station in Boston ample food for study and reflection. In the windows that face east, south and west, and in the thousands of feet of pent-roof over the street sidewalks, there is hardly a sheet of the glass that is not cracked and shivered into a dozen or a hundred different pieces of glass, just now held in place by the embedded wire and the unequal planes of fracture of the glass itself. But where cracks are, there moisture and acid-gases can penetrate, and when corrosion has done its work on the wire there is likely to be many a repetition, less innocent, too, of the incident which attended President Roosevelt's reception in this city a few weeks ago, when, as the newspapers reported, a sizable piece of this shattered wire-glass fell on to the platform not far from the President. Meanwhile before the time comes when falls of heavy pieces may be looked for, much of this shattering of the glass is already accompanied by the flying of fine splinters of glass; and as the oculists of Boston are said to have recognised a class of injury that they call "elevated railway eye," it is not impossible that they have been called on to treat for wire-glass eyes travellers who have to use the Boston Terminal Station. As fracture occurs least often on the north side, and most frequently where the windows face the rising sun, it is evident that the manufacturers must give further study to the qualities of radiant heat before wire-glass can be held to be a perfectly safe material to use."

* Extracts from a paper read at the annual convention of the International Association of Fire Engineers held in New York during September last.

Surveying & Sanitation.

Drain-Fakers.—"Grease Trap," writing to "The Times" under this heading, says:—"We are getting to be outrageously over-inspected, and our inspectors are getting to think outrageously overmuch of themselves. The Sanitary Inspectors' Association last Saturday week 'strongly protested against' Dr. Wynter Blyth for his opinion that it is 'unreasonable to expect an old drain to stand the water test,' the result of that opinion having been that a magistrate 'dismissed the case' brought by some local authority against a householder whom some inspector had presumably required to spend a year or two's rent in relaying his drains. The Association further 'urged the Sanitary Institute to dissociate itself from any implied concurrence in this statement,' or, in other words, called on the institute to deny its own chairman. Surely this is a stupendous piece of presumption on the part of persons paid to go about like African witch doctors, smelling out drains, but neither paid nor competent to question, much less to rebuke, a learned doctor for his opinions. The 'water-test' is, I understand, a test which requires all the drain pipes of a house to hold themselves full of water without leaking—a purpose for which they were never conceived, constructed or intended. Wherefore it seems to me that Dr. Blyth was quite right in his opinion thereof. The truth is that, under the action of certain local authorities, a new and intolerable tyranny has been established of sanitary inspectors who go about imposing on householders burdens most grevious to be borne—not because the drains of their houses fail to fulfil their proper purpose, but because they fail to fulfil some other purpose, such as that of holding water like a wine-glass; or because not the drain pipes but the sacred local authority's own sacred sewer itself gives off that sewer gas which has been laid on to every house by Act of Parliament. Reasonable repairs or amelioration of drains no reasonable person would refuse to make. But the most unreasonable tests and requirements of present-day sanitary inspectors must be questioned and resisted. Especially must they be resisted when we find that, after having long terrorized builders and householders, they have now banded themselves together to terrorize and excommunicate even the sanitary doctor himself who seeks to curb their pranks. Unless the drain-fakers are kept in order and brought to their bearings, it will be made impossible to live, much less to carry on business, in any locality cursed with their presence."



WALKER AND KIMBALL ARCHITECTS.

LOUISIANA PURCHASE EXPOSITION, 1904.

THE CHIEF BUILDINGS.

IN our issue for June 25th last we published an article on the great exposition which is to be held at Louis, U.S.A., in 1904 (it was formerly intended to hold it in 1903, but, for various reasons, the opening was postponed a year). In that article a full description was given of the inception of the scheme, of the setting-out of the grounds, and of the methods of construction to be adopted. A large illustration was given of the Building of Varied Industries (Van Brunt & Howe, architects) and the working details —bracing, stresses, &c.—explained in full.

We are able this week to give some illustrations of the other chief buildings of the Exposition, which may now be described in detail.

The Electricity Building (illustrated on this page) will be one of the wonders of the Exposition. The architects are Messrs. Walker & Kimball, of Boston and Omaha; and the contractors Messrs. William Goldie, Sons & Co., their tender for the building being about £80,000. The building is surrounded by water, and has a frontage of 650ft. towards the north and 525ft. towards the east, facing the main lagoon. A column treatment of the Corinthian order is the style selected. To give the feeling of greater height to the building the columns are carried down to the ground. Pediment and towers break the line of the façades. The building has a floor space of 292,000 sq. ft., and on two sides there are cloisters, while a balcony runs round the building, and gives another 100,600 sq. ft. for exhibits. About 185 tons of iron and steel are being used in the construction, whilst in all there are 176 trusses, the largest span being 82ft. The lighting-up of the Palace of Electricity at the Paris Exhibition, 1900, was one of the things that every visitor made a point of seeing. At St. Louis the same idea is brooding: in fact, an attempt is being made to produce a volume of light on a scale that the world has not hitherto seen.

The Manufactures Building (illustrated on the next page) forms the extreme left-hand corner of the main picture looking down the greater boulevard of the Exposition. It faces the Varied Industries Building and is one of the most extensive in the grounds, as it covers an area of 14 acres, and has a frontage to the north of 1,200ft., with a depth of 525ft. (This gives an exhibit space of 400,285 sq. ft.) A tower 400ft. high rises in the centre of the main elevation. Besides the smaller entrances at the corners there are four main doorways; these will be ornamented with groups of statuary allegorical of the great industries. The roof has been designed to give good light and perfect ventilation, while avoiding unduly large skylights. Each façade of the building has an open colonnade: courts fill the interior. A series of mural paintings on the inner walls of the cloister form a pictorial roll of honour of the rise, development and progress of the world's industrial arts. Old gold will be used as the background. The grand manner of Sir Alma-Tadema's work is taken as a type for the style in the designing of the paintings. Messrs. Carrère & Hastings, of New York, are the architects, and, although the building is of a temporary character, it is estimated to cost £50,000.

The architect of the United States Government Building (illustrated on p. 151) is Mr. James Knox Taylor, Supervising Architect of the United States Treasury Department. In style the structure is pseudo-Classic, and in character is more severe than many of the other exhibition palaces. The building is to be let out in separate contracts, the estimated expenditure on it being about £90,000. The site allotted is near the great Art Palaces. Access to the central pavilion is by means of a flight of steps 100ft. wide, adorned with statues severely Classic in design. The building measures 800ft. by 175ft. The main façade is 764ft. long, with centre and mid-pavilions connected by a colonnade of Ionic columns 5ft. in diameter and 45ft. high. The central pavilion with the colonnade on either side forms a portico 15ft. wide and 524ft. long. The building stands on a plateau 50ft. above the level of the general Exposition. An attic 15ft. in height, ornamented with statues, surmounts the Ionic order already noted. The height from the stylobate to the top of the attic is 82ft. The portico leading to the central position is of free-standing Ionic columns, while those of the end portions are in antis. The centre building is surmounted by a dome 93ft. in diameter, after the style of the dome of the Pantheon at Rome. The top of the quadraga that surmounts it is 175ft. above the ground. Spaces have been left in the building for the sculptures, which are now being moulded; they are emblematic of the Republic and the Arts of Peace. The building, like most of the other industrial palaces in the Exposition, is of staff constructed over a frame of timber. In plan it is rectangular. The floor measures 724ft. by 175ft. and is entirely free of columns, the roof being carried with steel trusses of 175ft. span, 70ft. high and 35ft. apart, one end of the trusses being fixed and the other resting on rollers. There are no skylights, as the building is entirely lighted by clearstories. Each of the end façades has a central portico and is 250ft. long. All the great Government Departments will be embraced in the exhibit.

Of the fifteen immense exhibition buildings now growing into form the Palace of the Fine Arts (see p. 151) is the most costly. At the close of the Exposition it will be handed over to the city of St. Louis as a permanent museum building. It is divided into three sections and on plan is like a capital E. The main or central building is of buff brick, whilst the wings, or annexes, are of brick, timber and staff. Collectively the Art Palace covers 450ft. by 830ft., and of this space the main building measures 340ft. by 160ft., separated from its two annexes by open courts 44ft. wide. The cost of construction is set down at about £200,000. By means of the open courts, the architect (Mr. Cass Gilbert, of New York and St. Paul) is

afforded opportunity for dealing with the four façades of the structure. In style the main building is Ionic, accentuated in its chief doorway by a porch and capitol of the Corinthian order, and of majestic proportions. The main façade, with its absence of window openings, is truly Classic. East and west the fronts are treated for about one-half their length in the severe style of the main façade. At the back of this, and including the entire south front, the architect has lightened his wall-surface with window lights. To break the roof line of the chief building a pediment rises to a height of about 40ft. above the general skyline. The Palace has on three sides a large garden which will be beautiful with flowers and foliage. As the building stands on a plateau 60ft. above the other main buildings, this garden is made with terraces and is designed after the fashion of those of the ancient Romans. Replicas of antique sculptures are to be placed at points of vantage, and the walls of the Art Palaces facing the gardens will be inlaid with replicas of tablets and of mural sculptures that have brought down till to-day the art histories of the past. A feature in the garden is a pergola connecting the two ends of the annexe building on the south side. In the centre of the Arts Palace is a hall 157ft. long and 94ft. wide, for statuary. The ceiling is arched and rises 51ft. above the floor. Light is obtained from a high clearstory through large semi-circular windows. On either side of the sculpture-hall picture galleries lighted from skylights fill the entire building. Studios, offices and workrooms are placed in the second storey. In the basement are jury-rooms, packing-rooms and space for heating apparatus.

The Machinery Hall (see p. 151) stands in the grounds next to the Electricity Palace. Messrs. Widmann Walsh & Boisselier are the architects, and the contract has been let to Messrs. Smith & Eastman for £100,000. The building's main dimensions are 525ft. by 1,000ft. The site is a large parallelogram with a huge corner-piece cut out of the south-east angle. The design of the building is symmetrical in treatment. On the south front the main entrance shows a triple arcade with flanking pavilions in the centre. The north front of 1,000ft. has an arcade of seven arches as a centre feature. The two axes of these central features are 60ft. apart and on each there is a cross aisle and a nave 80ft. wide. The two aisles are connected by a lower room, with lantern-light above. The east façade shows a comparatively low building centred by two gables and a smaller entrance. A triumphal-arch form has been used for the entrances and, as a landmark, two large towers (built on massive timber piers) are raised in the centre of the main aisle of the structure. Daylight is admitted through clearstory windows to all the principal aisles. The lower portions of the buildings round the courts are open, but are sheltered from the rain by umbrella galleries. The axial measurement of unit in the building is 20ft. and the widths of the various aisles are multiples of this unit, being 40ft., 60ft. and 80ft. wide respectively. The main aisles are 65ft. in height, and the secondary aisles 30ft. The building, which is constructed of staff, old ivory white in colour, placed over a framework of timber, will house the power plant for the Exposition. The boiler-house is situated a few rods to the west.

The architects of the Liberal Arts Building (illustrated on p. 152) are Messrs. Barnett, Haynes & Barnett, of St. Louis, and the contract has been let to the Conrad Kellerman Construction Co. for about £95,000.

A severe treatment of the French Renaissance is the form used for the exterior façade, and the designers have followed the Classic order closely. The building covers 400,000 sq. ft., the main façade being 750ft. long. Its line is broken by a central pavilion, rising above the roof line, and two end pavilions. The three pavilions form the grand entrances, though, in all, there are ten main entrances. These entrances intersect the exact centres of the exhibit space, the axial lines of the entrances running through the centres of the exhibit spaces from east to west and from north to south. The building is to be constructed without interior columns, the space from wall to wall being spanned by single trusses. Windows, both in the walls and in the clearstory, admit light. One of the features of the building is its interior court. This is being carried out in the old Roman spirit. A cloister runs around it, decorated with vases, sculptures, copies of the old masters and mural frescoes. On the attic storey of the building is installed a hanging garden.

The Exposition, which opens on May 1st, 1904, commemorates the purchase of the Territory of Louisiana from Napoleon I., which took place on April 30th, 1803. Exhibit space is free, and a certain amount of power will be supplied gratuitously for the processes of manufactures.

The offices for the United Kingdom are at Sanctuary House, Tothill Street, London, S.W. Mr. George F. Parker is the resident representative.



LOUISIANA PURCHASE EXPOSITION, 1904: THE MANUFACTURES BUILDING. CARRÈRE AND HASTINGS, ARCHITECTS.



UNITED STATES GOVERNMENT BUILDING. J. KNOX TAYLOR, ARCHITECT.



PALACE OF FINE ARTS. CASS GILBERT, ARCHITECT.



THE MACHINERY BUILDING. WIDMANN WALSH AND BOISSELIER, ARCHITECTS.

LOUISIANA PURCHASE EXPOSITION, 1904.



LOUISIANA PURCHASE EXPOSITION, 1904: LIBERAL ARTS BUILDING. BARNETT, HAYNES AND BARNETT, ARCHITECTS.

New Patents.

These patents are open to opposition until November 17th.

1901.—Door Latches.—22,561. W. C. HOWELL, 48, Grierson Street, Liverpool, and MILNER'S SAFE CO., LTD., 28, Finsbury Pavement, London, E.C. The latch consists of a rim carrying a spring-pressed bolt, and a block having tumbler levers, &c. This block is reversible, so that a right-handed latch can be easily converted into a left-handed one to suit doors which are hinged in either manner.

1902. — Drawing Boards. — 7,779. S. STANNARD, Flitwick, Bedfordshire. The board is grooved at each side to receive rods which hold the paper stretched. If needed the rods may be retained by clips.

Rolls for Beams, Girders, &c.—12,058. R. D. YORK, Jackson Street, Portsmouth, Ohio, U.S.A. The mill consists of rolls having two passes, one for producing a blank for an I-beam or girder of less than its intended width and having a thickened portion lengthwise for the web, and the other pass for rolling down the thickened portion so as to widen out the web to produce a completed blank.

The following specifications were published on Thursday last, and are open to opposition until November 24th. A summary of the more important of them will be given next week. The name in italics is that of the communicators of the invention.

1901.—18,276, POWELL & DAVEY, machine for excavating. 18,577, BUSH & MEDWAY, push-button controlled electric lift. 18,630, WORMALD PATENT LOCKS CO., LTD., & WORMALD, locks and keys. 18,756, JOHN, locks and latches for doors. 18,930, ROW & ROYLES, LTD., hot-water heating apparatus. 19,045, DE LENCHÈRES, compositions for mortar, concrete, &c. 20,449, WEBB & WEBB, hot and cold water systems for domestic use. 20,584, GLAZEBROOK, pug mills. 20,739, GLOVER, placing the cables of suspension bridges in position. 21,020, SKAIFE, sheet-metal cisterns. 21,482, THOMSON, railway platforms, copings, staircases, &c. 21,616, LAKE (*Portland Cement Fabrik Hemmoor & Valeur*), fireproof lining for kilns. 21,696, ANSCHÜTZ, making holes for blasting operations. 22,754, GNEZDA & HÄCKER, supports for casement windows. 23,469, HALLER & MACHELL, treatment of sewage.

1902.—703, NICOLL, SWINBURNE & CARTE, drainage blocks for pavements, &c. 7,984, WILLIAMS, piles. 9,828, TROTTER, coupling for lead and other pipes. 9,839, BENDER, file-handles. 10,423, HERMES, artificial asphalt. 14,588, LUND & LYCHE, water-heating apparatus. 16,190, JACOBSON, ventilators. 16,396, WILLIAMS, piles.

Law Cases.

The Employment of Young Girls in Brick-works.—At Wigan recently the Park Lane Brick and Tile Co. was summoned in three cases for contravening the Factories and Workshops Act by employing girls under sixteen years of age. Mr. Tinker, an inspector, stated that one of the girls, who had been working at a brick-making machine since she was fourteen years of age, a short time ago got her fingers crushed in the machinery. Mr. Graham, who represented the company, stated that the manager was not aware that he could not employ girls under sixteen. A fine of 10s. and costs was imposed in each case. The company was also summoned for failing to fence machinery, and fined £2 and costs. In all the fines amounted to £5 19s.

Building Lines: A Question of Consent.—At Cheltenham Police Court last week Mr. W. J. Merrett was summoned, at the instance of the Charlton Kings Urban District Council, for bringing forward houses which he is erecting in Coptelm Road beyond the frontage line of the adjoining house. The proceedings were taken under the Public Health Buildings and Streets Act of 1888. The case turned on the question of consent. It appeared that Mr. Merrett had submitted the plans of the houses to the Urban Council, and these had been returned stamped with the word "approved" and the names of the chairmen of the Roads and Public Health Committees respectively. When, however, some progress had been made with the building operations, it was discovered that the frontage line was exceeded. Notice requiring the setting back of the building was served on Mr. Merrett, but he held to the sanctioned plans and ignored the notice. After hearing arguments by counsel the Bench intimated that a majority of the magistrates were of opinion that the consent given by the Council was not the consent required by the Act for extending beyond the frontage line, and they fined defendant £5 with costs. Stay of execution was granted pending an appeal.

Keystones.

Three Stained-Glass Windows, together with a fine mural tablet of alabaster, have been placed in Cranbrook Church, Kent.

A new Welsh Presbyterian Church at Wigan is being erected in brick with Yorkshire stone dressings. Mr. R. Fleming is the architect and Mr. D. A. Ablett the contractor.

The Parish Church of St. John-at-Hackney has been reopened after thorough renovation and the installation of the electric light. The total cost of the repairs and alterations amounts to £1,823.

Mr. Charles France, F.R.I.B.A., architect, of Bradford, died at Oliver Hill, Horsforth, at the age of sixty-eight years, last Wednesday, and was buried last Saturday. Deceased was elected a Fellow of the Royal Institute of British Architects in 1893.

The Remains of a Roman Villa have been discovered at Penydarren Park, Merthyr. Pottery and coins had frequently been unearthed on the site, and this led to an organised attempt at exploration. The hypocaust of the villa has been laid bare, and what has been found leads to the belief that the discovery will prove to be an important one.

A new Catholic Church at New Ross, Ireland, has been erected. It is Early English in style. Its external length is 183ft.; internal length, 151ft.; width across transepts and across nave and aisle, 86ft. and 60ft. respectively; height of ridge of roof, 60ft.; and the height of tower and spire, 183ft. There are double transepts. The marble used in the building is of great variety and includes Kilkenny, Connemara, Middleton, Moate, &c. The carving of the whole church has been done by an Irishman, Mr. O'Connell, of Cork. The altars were erected by Messrs. Pearce & Son, of Dublin, and the communion rails by Mr. Edward Sharpe. Messrs. Smyth & Son, of Dublin, supplied the brass gates of the sanctuary. The confessionals and the screen in the porch were made by Mr. Andrew Cullen, of New Ross, who was the general contractor. The cost has been about £25,000.

"Modelling in Clay, &c.," is the title of No. 50 of the "Useful Arts and Handicrafts Series" just published by Messrs. Dawbarn & Ward, Ltd., 6, Farringdon Avenue, E.C., price 6d. nett.

The Raven Inn at Hook, near Basingstoke, is advertised for sale. The old hostelry was built in the year 1653, and still retains its quaint old half-timbered work overhanging gables and small windows.

A new Church at Cornholme, Todmorden, has been erected to accommodate about 500 persons. Mr. C. Hodgson Fowler, F.S.A., of Durham, was the architect.

A Marble Statue of Queen Victoria at Leamington was unveiled last Saturday. Mr. Albert Toft was the sculptor. The statue stands on a granite pedestal 12ft. in height, and is placed outside the municipal buildings in the centre of the town. It has cost 1,600 guineas.

The Jacobean Cloth Hall at Newbury, an interesting relic of the days when Newbury was a flourishing centre of the cloth trade, has been purchased and restored at a cost of £2,000, and will be converted into a local museum and art gallery as a memorial of Queen Victoria. The old building, which contains some quaint carvings, has for many years been used as a corn store.

The new Gaiety.—At the ordinary general meeting of the Gaiety Theatre Company the chairman said £75,000 had been received from the London County Council towards the new theatre now being erected at the end of the Strand to Holborn Crescent, but they did not think it would be quite sufficient. The first estimate for the building was £63,000, which with extras he thought would be £66,000.

St. Michael's Church, Bath, an early nineteenth-century edifice, has been entirely reseated with English oak. Each of the standards at the ends of the various seats is carved with conventional designs, whilst the backs and fronts of the benches have "linen-panels" carved upon them, surmounted by embattled moulds. The alterations have been carried out from the designs of Messrs. Gill & Morris, architects, of Fountain Buildings, Bath, by Messrs. Harry Hems & Sons, of Exeter. The cost has been about £1,000.

The old Grammar School at Lichfield was recently sold, after keen competition, for £1,035 to Mr. Baset Lever, of Wychnor Park, and the proceeds are to be devoted to the completion of the first portion of the new commercial and scientific schools which the Governors are now erecting at Borrowcop at an expenditure of between £7,000 and £8,000. The new buildings are being carried out from the design and under the superintendence of Mr. T. Hillier-Pyke, architect, of East Ham, London, E. It is expected that the new buildings will be ready for occupation by the end of the present year.

The Clergy and Artists' Association for the improvement of art in churches, instead of holding its usual exhibition at the time of the Church Congress, will have exhibitions this autumn in New York and the principal cities of the United States and Canada in connection with the Architectural League of New York. Reproductions of work executed in this country for churches and other buildings under its auspices will be shown, including painting, sculpture, glass, architectural work, metalwork, embroidery, &c. It is thought that the exhibition may have importance in influencing the direction of church art in America, where, as in this country, such art is apparently more in the hands of commercial houses than in those of individual artists having a real interest for the work.

A new Sanatorium in Delamere Forest is being erected at a cost of about £70,000. There will be provision for ninety beds for the treatment of consumptives.

The largest Sunday Schools at Walthamstow were opened recently for the trustees of the United Methodist Free Church. Mr. J. Williams Dunford of 100c, Queen Victoria Street, E.C., is the architect.

A Memorial Statue of Mr. Gladstone at Glasgow, in George Square, was unveiled on Saturday by Lord Rosebery. It is in bronze, and represents Mr. Gladstone in his robes as Lord Rector of the University. Mr. W. Hamo Thorneycroft, R.A., was the sculptor.

Liverpool Cathedral.—The executive committee of the Liverpool Cathedral Committee have decided to confine the final competition to the five architects selected by the advisory architects. Each competitor will receive an honorarium of 300 guineas. The conditions of the competition will be issued shortly.

A new Church at West Derby is being erected as a chapel-of-ease to the parish church. The site is situated at the hamlet known as the Dog and Gun. It has been designed by Mr. J. Oldrid Scott, son of the late Sir Gilbert Scott, and will be of stone, in the Early English style, cruciform in shape, with nave, apse, two transepts for the organ and vestries, and surmounted by a small central tower. It will accommodate about 300 persons. The contractors are Messrs. Lowe, of Burton-on-Trent.

Open-Air Sanatoria.—The Secretary to the Hospital for Consumption and Diseases of the Chest calls attention to the fact that the committee are at the present moment building a "country branch" for open-air treatment, with a convalescent home, at Hatherside, near Bagshot, on an admirably adapted site on Chobham Ridges. This new building will have all the latest improvements, and be able to accommodate 100 inmates, and will, it is hoped, be ready next year. The cost will be altogether about £60,000. Mr. E. T. Hall, F.R.I.B.A., is the architect.

The Church of St. Michael, Bristol, is comparatively modern and of the style familiarly termed "debased," but it rejoices in a tower that dates back to the fifteenth century, and is a fine example of the well-known Somersetshire type. When the old church of the same date was destroyed and its successor erected the tower was repaired and patched up in the style of the period, but happily was not demolished. It has now been restored. The modern alterations have been as far as possible effaced, and the greatest care has been taken to preserve the old stonework. The cost has been £1,200.

The Glasgow Technical College Architectural Craftsmen's Society held its opening meeting of the session last Friday evening, when the presidential address was delivered by Mr. C. Ernest Monro. At the outset reference was made to the progress and work of the Society since its institution, and thereafter he proceeded to read a paper entitled "Materials—Some Misuses and Limitations." The "Lamp of Truth" was strongly emphasized, and the importance of practical knowledge of the nature and capabilities of materials with regard to their individual uses and adaptabilities for particular purposes and treatment in construction. A vote of thanks was accorded to the lecturer, and attention was called to the conditions of the prize offered by Mr. P. Macgregor Chalmers, I.A., for the best essay on the subject of "New Buildings in Glasgow and their Methods of Construction."

St. James's Concert Hall, Piccadilly, W., was built by Owen Jones, who introduced the designs and colourings of Moorish architecture, but in the redecoration Mr. Walter Emden, who has been the architect of the building for the past thirty years, has introduced the Byzantine style. The colour scheme is one of considerable boldness; the main walls are an intense red, combined with subdued green and gold, while the ceiling panels are painted with an immense Byzantine design in green, yellow and cream. Modelled plaster has been substituted for the old iron fronts to the balcony and gallery. The new fronts are concave, thus giving additional comfort to the sitter, and a book rest has taken the place of the old rail. The approaches to the concert hall have been completely modernized with oak doors and dado, and the Regent Street entrance has been widened, the vestibule at the top of the first flight of stairs being converted into a crush room. The hall in which the Mohawk Minstrels perform has also been entirely renovated and decorated in Renaissance style, the grand entrance in Piccadilly being at the same time greatly improved, the walls at each side being covered with dove and Sicilian marble and the floor laid with marble tiles.

ULSTER SOCIETY OF ARCHITECTS.

THE annual meeting of the Designing and Sketching Club of this Society was held at 16, High Street, Belfast, on October 6th. Mr. M. J. Gilliland, M.R.I.A.I., presided. The secretary's report on the work of the summer session showed that inspection visits were made to the Belfast Municipal Buildings now in course of erection, by invitation of the architect, Mr. Thomas, who personally conducted members over the works; the Royal Victoria Hospital, Belfast, by invitation of the architect, Mr. Henman; St. Ann's Cathedal, Belfast, in course of erection, by invitation of the architect, Sir Thomas Drew, and under his guidance; and the cathedrals of Christ Church and St. Patrick, Dublin, by invitation of Sir Thomas Drew, honorary architect, and under his guidance. Five sketching visits were also paid to important buildings in and around the city.

Mr. E. R. Kennedy was re-elected joint hon. secretary and treasurer; committee, Messrs. Maxwell, Murphy and Kennedy.

The chairman then proceeded with his opening address to students, in the course of which he pointed out the many advantages to be acquired by taking the qualifying examinations of the R.I.B.A. as a basis. These examinations were the only substitute for registration until the proper legal powers were obtained. He went on to deal with the evidence which he had given before the Royal Commission on University Education in Ireland. He considered an intelligent study of the following subjects, as far as they applied to the architectural profession, of great importance:—Botany, zoology, geology, physics, hygiene and architectural jurisprudence. In conclusion he expressed a hope that the suggested Chair of Architecture in the Queen's College, Belfast, would soon be instituted.

The programme for the coming winter session was briefly reviewed. It includes subjects for design set by the folllowing senior members of the profession:—Sir T. Drew, P.R.H.A., Mr. W. J. Gilliland, M.R.I.A.I. (vice-president of the Society), Mr. V. Craig and Mr. F. H. Tulloch, FF.R.I.B.A., Mr. S. P. Close, A.R.H.A., Mr. J. St. J. Phillips, A.R.I.B.A., Mr. J. J. McDonnell, Mr. A. T. Jackson, Mr. J. C. Lepper, members R.I.A.I.; also lectures by Mr. W. J. Fennell, M.R.I.A., Mr. W. J. W. Roome, M.S.A., and Mr. F. E. Ward. The president closed his address by congratulating the students on the very successful work accomplished since the formation of the club in April last.

Complete List of Contracts Open.

DATE OF DELIVERY.		WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDERS MAY BE OBTAINED.
		BUILDING:		
Oct.	16	Llanfairfechan, Wales—Police Station and Cells		County Surveyor, Carnarvon.
,,	16	Croydon—Cement, Lime, &c.	Town Council	Borough Road Surveyor, Town Hall, Croydon.
,,	16	Armley—Shed		C. S. Nelson, 15 Park Row, Leeds.
,,	16	Longhope, Orkney—Custom House	Commisssioners of H.M. Works	H.M. Office of Works, Edinburgh.
,,	16	London, N.—Builders' Work at Infirmary	Islington Guardians	W. Smith, 65 Chancery Lane, W.C.
,,	16	Lincoln—Reseating, &c., Chapel		W. Mortimer & Son, Architects, Lincoln.
,,	16	Londonderry—Improvements to Houses, &c.	R. Gallagher	J. P. McGrath, 28 Carlisle Road, Londonderry.
,,	17	Cairncross, near Stroud—Isolation Hospital	Joint Hospital Board	Vale & Kingsford, 21 George Street, Gloucester.
,,	17	Great Yarmouth - Two Houses		C. G. Baker, Architect, Town Hall Chambers, Great Yarmouth.
,,	17	Halifax—Bakery, &c.		M. Hall, 29 Northgate, Halifax
,,	18	Bury, Lancs—Walls	Water Board	J. Cunliffe, Farm Bailiff, Windy Bank, Water, Rawtenstall.
,,	18	Cobridge, Staffs—Rooms at School		A. Price, Architect, Sandbach.
,,	18	Coniston—Villa	Mrs. Coward	J. Bell, Architect, Coniston.
,,	18	Five Roads, Llanelly—House		W. Bennett, Ystodwen Farm, Five Roads.
,,	18	Porthcawl, Wales—Alterations, &c., to Police Station	County Council	County Surveyor, Town Hall, Bridgend.
,,	18	Chorley, Lancs—Bricks	Corporation	Borough Surveyor, Chorley.
,,	18	Tunbridge Wells—Flues at Electric Light Station		Borough Surveyor, Town Hall, Tunbridge Wells.
,,	18	Sheffield—Infirmary Block	Ecclesall Bierlow Union Gdns.	W. H. Lancashire & Son, Architects, Hartshead, Sheffield.
,,	18	Cobridge—Additions to School		A. Price, Architect, Sandbach.
,,	19	Ardoyne, Belfast—Fire Brigade Station	Corporation	W. J. Hunter, Quantity Surveyor, Scottish Provident Bldgs., Belfast.
,,	19	Belfast—Fire Brigade Station	Police Committee	S. C. Hunter, Quantity Surveyor, Scottish Provident Bldgs., Belfast.
,,	20	Bridlington—Underground Lavatories	Corporation	Borough Surveyor, Town Hall, Bridlington.
,,	20	Kingston-on-Thames—Ambulance Shed, Additions to Infirmary, &c.	Union Guardians	J. Edgell, Clerk, Union Offices, Coombe Lane, Kingston-on-Thames.
,,	20	London, W.—Bricks, Lime, Cement, Glass, &c.	Great Western Railway Co.	Stores, Superintendent, Swindon.
,,	20	Hemsworth—Ten Houses	R. P. & J. W. Husband	Tennant & Bagley, Architects, Pontefract.
,,	20	Plymouth—Workmen's Dwelling Block	Corporation	J. Paton, Borough Engineer, Municipal Offices, Plymouth.
,,	21	Sheffield—School	School Board	W. J. Hale, 13 St. James's Row, Sheffield.
,,	21	Acton—House, &c.	District Council	D. J. Ebbetts, 242 High Street, Acton.
,,	21	Accrington—Works		H. Ross, 15 Cannon Street, Accrington.
,,	21	Loughor, Wales—Repairs to Bridges	Carmarthenshire County Council	J. W. Nicholas, Clerk, County Offices, Carmarthen.
,,	21	Newbridge—Twenty-eight Houses	Abercarn Urban District Council	G. Stevens, Surveyor, Council Office, Abercarn.
,,	21	Brierley Hill, Staffs—Technical School and Free Library	Urban District Council	J. L. Harper, Town Surveyor, Town Hall, Brierley Hill.
,,	21	Loughborough, Leics—School	School Board	Barrowcliff & Allcock, Architects, Mill Street, Loughborough.
,,	22	Carlton, Notts—Isolation Hospital		F. Hopkinson, 40 Bridge Street, Worksop.
,,	22	Burton-upon-Trent—Car Depot	Corporation	Kincaid, Waller & Manville, 29 Great George Street., London, S.W.
,,	22	Dublin—Eighty-four Labourers' Cottages	South Dublin Rural Dist. Council	T. J. Byrne, 1 James's Street, Dublin.
,,	22	Beverley—House	East Riding Asylum Committee	C. W. Hobson, Clerk, Newbegin, Beverley.
,,	22	Belfast—Shops and Offices		Mr. Hunter, Scottish Provident Buildings, Belfast.
,,	22	Swadlincote, Burton-on-Trent—Chimney Shaft	Urban District Council	G. B. Smedley, Engineer, Gasworks, Swadlincote.
,,	23	Merthyr Tydfil—Additions to Campsie House	Union Guardians	T. Roderick, Architect, Aberdare.
,,	23	Greenwich—Additions to Schools	Union Guardians	T. Dinwiddy & Sons, 12 Crooms Hill, Greenwich, S.E.
,,	23	Carmarthen—Boiler and Engine House		E. W. Reed, Clerk, Asylum, Carmarthen.
,,	24	East Cliff, near Dover—Coastguard Buildings	Admiralty	Director of Works Dept., Admiralty, Northumberland Avenue, W.C.
,,	24	Bradford - School	School Board	T. C. Hope & Son, 23 Bank Street, Bradford.
,,	28	Crewe—Pavilion at Hospital	Town Council	G. E. Bolshaw, 189 Lord Street, Southport.
,,	28	Isleworth—Vagrant Wards at Workhouse	Brentford Union Guardians	W. Stephens, Clerk, Union Offices, Isleworth, W.
,,	29	Londonderry—Additions, &c., to Infirmary	Infirmary Committee	A. E. Murray, 37 Dawson Street, Dublin.
,,	31	Cork—Rebuilding Premises	Young Men's Association	W. H. Hill & Son, Architect, Cork.
Nov.	3	Beaufort, Wales—Classrooms, &c.	Llangattock School Board	H. Waters, Architect, Waengoch, Beaufort.
,,	4	Ystradgynlais, Wales—School		P. Williams, Tyr Gorof, Ystradgynlais.
,,	15	Bromsgrove, Worcs—Lunatic Asylum	County Council	R. J. Oliver, Clerk, Shirehall, Worcester.
		ENGINEERING:		
Oct.	16	Bootle, Cumberland—Waterworks	Rural District Council	R. Pickering, 11 Lowther Street, Whitehaven.
,,	16	Rotherham—Electric Plant	Corporation	H. H. Copnall, Town Clerk, Town Hall, Rotherham.
,,	18	Wakefield—Electric Lighting	Guardians	H. Beaumont, Clerk, Union Offices, Tetley House, Wakefield.
,,	18	East Retford—Steam Road-Roller		J. D. Kennedy, Borough Surveyor, East Retford.
,,	18	Bootle, Lancs—Electric Wiring	Corporation	Anderson & Crawford, 36 Dale Street, Liverpool.
,,	18	Dudley—Arc Lamp Carbons	Corporation	R. P. Wilson, 66 Victoria Street, Westminster.
,,	18	Glasgow—Bucket Elevators, &c.	Corporation	D. H. Morton, 130 Bath Street, Glasgow.
,,	18	Manchester—Boilers, &c.	Tramways Committee	J. M. M'Elroy, 55 Piccadilly, Manchester.
,,	20	Earby, Yorks—Reservoir	Waterworks Company	H. A. Johnson, 15 The Exchange, Bradford.
,,	20	London, S.E.—Heating	Bermondsey Borough Council	R. J. Angel, Borough Surveyor, Town Hall, Spa Road, S.E.
,,	20	Bury, Lancs—Waterworks	Joint Water Board	J. Cartwright, Civil Engineer, Peel Chambers, Bury.
,,	20	Wigan—Electric Equipment of Tramway	Corporation	J. Slevin, Borough Electrical Engineer, Bradford Place, Wigan.
,,	20	Wigan—Cars, &c.	Corporation	J. Slevin & W. Bolton, Borough Engineers, Wigan.
,,	20	Edinburgh—Covering Yard, &c.	Caledonian Railway Co.	Company's Divisional Engineer, Princes St. Station, Edinburgh.
,,	20	Bermondsey—Heating Town Hall	Borough Council	R. J. Angell, Borough Surveyor, Town Hall, Spa Road, S.E.
,,	21	London, S W.—Electric Car Traversers	London County Council	County Hall, Spring Gardens, S.W.
,,	21	London—Reconstruction of Bridge over Canal	London County Council	Engineer's Department, County Hall, Spring Gardens, S.W.
,,	21	Brandon, Suffolk—Well, &c.	Rural District Council	H. Walker & Son, Engineers, Albion Chbrs., King St., Nottingham.
,,	21	Kilkenny—Waterworks	Corporation	P. O'Grady, Executive Sanitary Officer, Tholsel, Kilkenny.
,,	21	Burnley—Bridge, &c.	Lancs & Yorks Rly. Co.	Engineer, Hunt's Bank, Manchester.
,,	22	Ipswich—Switchboard, &c.	Corporation	W. Bantofts, Town Clerk, Town Hall, Ipswich.
,,	22	Ramsgate—Gas Engine, &c.	Isle of Thanet Ice Co., Ltd.	P. S. Emett, Secretary, Pier Yard, Ramsgate.
,,	22	Swinton, Rotherhithe—Borehole Works	Urban District Council	R. Fowler, Engineer, Council Offices, Station Street, Swinton.
,,	27	Victoria, British Columbia—Steel Bridge		Agent-Gen. for British Columbia, 819 Salisbury House, London Wall.
,,	27	Hill End. near St. Albans—Sewage-disposal Works	Asylums Visiting Committee	B. Latham, Parliament Mansions, Victoria Street, Westminster.
,,	27	Johannesburg—Destructor	Municipality	E. W. Carling & Co., St. Dunstan's Bdgs., St. Dunstan's Hills, E.C.
,,	27	Ramsbottom, Lancs—Tanks Reconstruction	Urban District Council	J. Diggle, Hind Hill Street, Heywood.
,,	28	Glasgow—Machinery, &c.	Corporation	Office of Public Works, City Chambers, 64 Cochrane St., Glasgow.
,,	28	Vielsalm to Lierneux, Belgium—Railway	National Co. of Local Railways	Company's Offices, 14 Rue de la Science, Brussels.
,,	30	Shanghai—Electrical Plant	Municipal Commissioners	Preece & Cardew, 8 Queen Anne's Gate, Westminster.
Nov.	4	Coalville, Leics—Valves, &c.	Urban District Council	J. B. Everard, 6 Millstone Lane, Leicester.
,,	4	Coalville, Leics—Reservoir	Urban District Council	J. B. Everard, 6 Millstone Lane, Leicester.
,,	4	Coalville, Leics—Engines and Boilers	Urban District Council	J. B. Everard, 6 Millstone Lane, Leicester.
,,	14	St. Petersburg—Electric Traction on Tram Lines	Stadt Amt (Town Council)	Stadt Amt, St. Petersburg, Russia.
,,	14	Leeds—Aqueduct Tunnel	Corporation	City Engineer, Leeds.
,,	28	Burton-on-Trent—Inclined Retort Plant	Corporation	F. L. Ramsden, Manager, Gas & Elec. Light Wks., Burton-on-Trent.
,,	29	Manchester—Reconstruction of Bridge		City Surveyor, Town Hall, Manchester.
,,	30	Shanghai—Electric Lighting	British Municipal Councils	Office of the Board of Trade, 50 Parliament Street, S.W.
Dec.	13	Madrid—Canal Reservoir		Office of the Ministry of Agriculture, Commerce and Public Works, Madrid.
		IRON AND STEEL:		
Oct.	16	Croydon—Stores	Town Council	Borough Road Surveyor, Town Hall, Croydon
,,	16	Manchester—Steelwork	Electricity Committee	City Surveyor, Town Hall, Manchester.
,,	17	London, E.C.—Wheels and Axles	Assam-Bengal Rly. Co., Ltd.	O. I. Milne, 56 Bishopsgate Street Within, E.C.
,,	18	Manchester—Cast-iron Pipes, &c.	Tramways Committee	J. M. M'Elroy, 55 Piccadilly, Manchester.
,,	20	London, W.—Stores, &c.	Great Western Railway Co.	Stores Superintendent, Swindon.
,,	23	Manchester—Iron and Steelwork	Gas Committee	C. Nickson, Superintendent, Gas Dept., Town Hall, Manchester.
,,	27	Ashton-under-Lyne—Railing		J. T. Earnshaw, Borough Surveyor, Town Hall, Ashton-under-Lyne.
,,	29	Callao, Peru—Cast-iron Pipes	Corporation	Graham, Row & Co., Liverpool.
Nov.	4	Coalville, Leics—Pipes	Urban District Council	J. B. Everard, 6 Millstone Lane, Leicester.
		PAINTING AND PLUMBING:		
Oct.	16	London, S.E.—Painting, &c., Baths	Lambeth Borough Council	H. Edwards, Borough Engineer, Lambeth Town Hall, Kennington Green, S.E.
,,	20	London, W.—Paints, White and Red Lead, Varnishes, &c.	Great Western Railway Co.	Stores Superintendent, Swindon.

COMPLETE LIST OF CONTRACTS OPEN—*continued.*

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDERS MAY BE OBTAINED.
	ROADS AND CARTAGE:		
Oct. 16	Croydon—Materials and Stores	Town Council	Borough Road Surveyor, Town Hall, Croydon.
,, 17	Preston—Levelling, Paving, &c.	Corporation	Borough Surveyor, Town Hall, Preston.
,, 18	Croydon—Repairs to Tar Paving, &c.	Union Guardians	F. West, 23 Coombe Road, Croydon.
,, 18	Manchester—Granite Setts	Tramways Committee	J. M. M'Elroy, 55 Piccadilly, Manchester.
,, 21	Acton—Making-up, &c., at Cemetery	District Council	D. J. Ebbetts, 242 High Street, Acton.
,, 21	Brentford—Granite	Urban District Council	N. Parr, Surveyor, Clifden House, Boston Road, Brentford.
,, 23	Willenhall, Staffs—Road Improvements	Urban District Council	T. E. Fellows, Engineer, Town Hall, Willenhall.
Nov. 3	Hastings—Brooms and Brushes	Corporation	P. H. Palmer, Borough Engineer, Town Hall, Hastings.
,, 11	Dartford—Making-up, &c.	Urban District Council	W. Harston, 8 Hythe Street, Dartford.
	SANITARY:		
Oct. 16	Carlton—Scavenging	Urban District Council	J. E. Truman, Inspector of Nuisances, Godfrey Street, Netherfield.
,, 16	Uxbridge—Sewers, &c.	Rural District Council	J. F. Stow, Engineer, Corn Exchange, Uxbridge.
,, 16	Croydon—Drain Pipes, &c.	Town Council	Borough Road Surveyor, Town Hall, Croydon.
,, 17	Mill Street, Ireland—Sewer	Rural District Council	T. M. O'Connor, Clerk, Workhouse, Mill Street.
,, 20	London, W.—Lime, Drain Pipes, Sanitary Ware and Fittings, &c.	Great Western Railway Co.	Stores Superintendent, Swindon.
,, 20	Hindley, Lancs—Sewering	Urban District Council	A. Holden, Surveyor, Council Offices, Hindley.
,, 21	Tyldesley, Lancs—Pipes	Urban District Council	J. B. Smith, Surveyor, Council Offices, Tyldesley.
,, 21	Tyldesley, Lancs—Sewer, &c.	Urban District Council	J. B. Smith, Surveyor, Council Offices, Tyldesley.
,, 24	Brigg, Lancs—Sewers, &c.	Urban District Council	R. E. W. Berrington, 28 Victoria Street, Westminster, S.W.
Nov. 3	Dartmouth—Sewers, &c.	Town Council	A. Smith, Borough Surveyor, Dartmouth.
Dec. 15	Monte Video—Sanitary Works	Government of Uruguay	Uruguay Legation, London.
	TIMBER:		
Oct. 20	London, W.—Deal Paving Blocks	St. Marylebone Borough Council	J. P. Waddington, Town Hall, Marylebone Lane, Oxford Street, W.
,, 30	London, E.C.—Timber, &c.	London Gen. Omnibus Co., Ltd.	Manager of Coach Factory, 235 Upper Street, Islington, N.

List of Competitions Open.

DATE OF DELIVERY.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Oct. 20	Port Erin—Railway Station	£21.	G. H. Wood, Secretary, Isle of Man Railway Co., Douglas.
,, 25	Hamilton, Scotland—Tenements	£15 15s., £10 10s., £5 5s.	W. Pollok & P. M. Kirkpatrick, Town Clerks, Town House, Hamilton.
Nov. 1	Allahabad—Memorial to Queen Victoria	2,000 Rs.	H. N. Wright, Indian Civil Service, Allahabad, India.
,, 29	Ramsgate—Technical Schools and Free Library	£50, £25, £15.	T. G. Taylor, Borough Surveyor, Albion House, Ramsgate.
Dec. 1	Arundel, Sussex—Laying-out Land	£50, £20.	A. Holmes, Town Clerk, Arundel.
,, 18	Durban, Natal—Town Hall, Library, Museum, &c.	£500, £300, £200.	W. H. Radford, Albion Chambers, King Street, Nottingham.
Jan. 31	Cape Town—University Buildings	£400, £200, £100.	Agent-General for the Cape of Good Hope, London.
,, 31	Hull—Town Hall Extension	£300, £200, £100.	E. Laverack, Town Clerk, Town Hall, Hull.
Feb. 13	Patras, Greece—Church	£400, £160, £80.	Committee for new Church of St. Andrew, Patras, Greece.

Builders' Notes.

Mr. R. Hillier has been appointed the clerk f the works at the General Post Office ast, in succession to Mr. E. Carpenter.

The British Fire Prevention Committee has ommenced its winter sessions. Reports are eing issued during this month and the next n tests with armoured doors, and oak and eal doors compared, as well as on uralite oors, and the Pearson's fire alarm. Testing perations will recommence at the testing ation at Porchester Road on October 22nd ith a partition by the British Uralite Co. nd a heavy oak floor for warehouse purposes. he executive are occupied at their weekly ieetings with the question of standardizing ie tests of the Committee, and particulars of ie results arrived at will shortly be published ith the object of facilitating comparisons.

Chrome is found both in European and siatic Turkey in considerable quantities, ut only districts within easy reach of the ea have been worked. The principal work-ngs are in the neighbourhood of Salonica, roussa and Macri. The largest deposits are aid to be in the district of Denislie, but the overnment have granted no permits to ork this region. The Denislie ore has ielded in tests as high as 56 per cent. of xide of chrome, and is a surface deposit. he cost of transport is high. The Broussa ines are comparatively new, and most of is output has gone to the United States. heir proprietor is Ragoub Bey, who, being the Sultan's palace, pays no royalty. The overnment collects a mining royalty of per cent. on chrome and a customs duty f 1 per cent. The ore is frequently mixed ith gang rock (serpentine), and only of late ears have any experiments been made ooking to the separation of the chrome om the refuse.

Fire Insurance and Architect's Fees.—Mr. . Middleton Shallcross, architect, of Liver-ool, writes to the "Times" as follows:—"Some of the fire insurance companies refuse to pay architect's fees incurred in the reinstatement of fire damage, nothwithstanding that premium has been paid upon architect's fees, originally incurred, as part of the cost of the building insured; other fire insurance companies only pay such fees in cases where they have been separately mentioned and described in the policy; and, again, other fire insurance companies always pay such fees whether or not they are separately described in the policy. Those who think they are insured against fire would do well, therefore, to enquire from their assurers how the matter stands in their own particular cases, as otherwise, should a fire occur, they may find themselves uncovered to the amount of several hundreds of pounds in respect of their premises. This information is the result of enquiries made amongst some eighteen or twenty of the principal fire insurance companies of the United Kingdom."

New Companies.

Farnsworths, Ltd.

Registered to acquire the patent rights in the Perfect tram-track cleaner and the Perfect road-sweeper, numbered 16,818 and 2,957 respectively; to manufacture and deal in such cleaners and sweepers, &c. Capital £15,000 in £1 shares. The directors are J. Goldstein, J. I. Goldstein, S. J. Farnsworth, S. Ludlam, W. Favell, E. Farnsworth and J. Farnsworth.

Howstrake Estate, Ltd.

Registered to acquire any property in the Isle of Man, the United Kingdom or elsewhere; to develop, deal with and turn to account the same; to erect or alter and maintain buildings; to advance money to builders and others, &c. Capital £1,000 in £1 shares. The first directors are A. J. Lusty and F. Saunderson. Registered office: 10, Cook Street, Liverpool.

Holloway Brothers (London), Ltd.

Registered to acquire and carry on the business of builders, contractors and decorators now carried on by Holloway Brothers at Lambeth and elsewhere, and to carry on the business of builders, contractors, decorators, dealers in timber, slate, stone, cement, hardware and building materials, brickmakers, quarrymen, manufacturers, engineers, wharfingers, lightermen, shippers, &c. Capital £300,000 in 100,000 "A" shares of £1 each, 199,924 "B" shares of £1 each and 120 "C" shares of 1s. each. Henry T. Holloway and Henry Holloway are governing directors for life. Registered office: 19 and 21, Belvedere Road, Lambeth, S.E.

Coming Events.

Wednesday, Oct. 15.

Sanitary Institute (Lectures and Demonstrations for Sanitary Officers, Part I.).—Mr. J. Priestley, B.A., M.D., on "Duties of a Sanitary Inspector: Indoor," 7 p.m. Inspection and Demonstration in the District of St. Marylebone at 3 p.m., conducted by Mr. T. Gorniot.

Architectural Association (Discussion Section).—Mr. Noel F. Barwell on "Some Recent Theories concerning Saxon and Early Norman Work in England," 7.30 p.m.

London Topographical Society.—Annual General Meeting in the rooms of the Society of Antiquaries, Burlington House, Piccadilly, W.

Friday, Oct. 17.

Sanitary Institute (Lectures and Demonstrations for Sanitary Officers, Part I.).—Mr. J. Priestley, B.A., M.D., on "Duties of a Sanitary Inspector: Offensive Trades and Trade Nuisances, &c." 7 p.m.

Institution of Mechanical Engineers.—Captain C. C. Longridge on "Oil Motor Cars in 1902" 8 p.m.

Architectural Association.—Mr. T. R. Spence on "Homer and Architecture," 7.30 p.m.

Saturday, Oct. 18.

Sanitary Institute (Lectures and Demonstrations for Sanitary Officers, Part I.).—Inspection and Demonstration of Disinfecting Apparatus and Model Steam Laundry at St. John's Wharf, Fulham, at 2.30 p.m., conducted by Mr. W. G. Lacy.

Monday, Oct. 20.

Liverpool Architectural Society.—First Members' meeting. Visit to Free Library, William Brown Street.

Tenders.

Information from accredited sources should be sent to "The Editor" at latest by noon on Monday if intended for publication in the following Wednesday's issue. Results of Tenders cannot be accepted unless they contain the name of the Architect or Surveyor for the work.

Addressed postcards on which lists of tenders may be stated will be sent post free on application to the Manager, BUILDERS' JOURNAL, *Effingham House, Arundel Street, Strand, W.C.*

Bristol.—For the construction of a brick culvert (217yds.) and manholes through land Mina Road, Bristol. Messrs. Holbrow & Oaten, surveyors, 9 Clare Street, Bristol:—

W. Thomas	£785 0
E. Walters	780 0
A. Brittan	650 0
G. Hedges*	545 4
G. Jones	537 0

* Accepted. [All of Bristol]

Dover.—For supplying and laying sewers in Liverpool Street, Marine Parade, and East Cliff, comprising about 215ft. run of egg-shaped brick and cement sewer, 3ft. 6in. by 2ft. 4in.; 290 lineal feet of 24in., 343ft. of 21in., 1,434ft. of 18in., and 244ft. of 12in. stoneware socket pipes, with manholes, &c., in connection therewith, for the Town Council. Mr. Henry E. Stilgoe, A.M.I.C.E., borough engineer:—

J. & T. Binns, 104 Wellesley Road, Croydon	£2,018 0 0
G. Munro, Heathfield Avenue, Dover	1,981 0 0
A. G. Osenton, Westerham	1,956 0 0
G. Bell, Tottenham	1,794 3 8
H. Richardson, Templar Street, Dover	1,774 0 0
J. Reeves,* Cheriton, Folkeston	1,740 19 10

* Accepted. [Surveyor's estimate.]

Finchley, N.—Accepted for the erection of new electricity works and tall chimney for the Finchley Urban District Council. Mr. E. Calvert, engineer:—
Hockley & Co., Grantham.

Grantham.—Accepted for the erection of new electricity works, &c., at Grantham for the Edmondson's Electricity Corporation, Ltd. Mr. J. Armitage, architect, Broad Sanctuary Chambers, Westminster, S.W.:—
Hockley & Co., Grantham. [Schedule of prices.]

Hockley (Essex).—For the erection of a mixed school for 200 children, teacher's residence, offices, and boundary fences, &c., in Hockley Village, for the Hockley School Board. Mr. Walter J. Wood, architect, 26 Alexandra Street, Southend-on-Sea:—

D. Lamb, for the Salvation Army Farm Colony, Hadleigh, Essex	£3,911 10
Clare Brothers, Stratford, E.	3,606 10
S. E. Moss, Southend	3,541 9
Coulson & Lofts, Cambridge	3,539 0
Howard & Ruffle,* Hockley	3,387 10
F. Wilmot, Ilford, Essex	3,360 0
E. West, Chelmsford	3,334 0
F. Dupont & Co., Southend	3,320 0
F. & E. Davey, Southend	3,287 0
Davis & Leaney, Southend	3,224 0
R. Elvey, Southend	3,150 0

* Accepted.

London, E.—For stores, cart and van sheds, offices, lodge, and public urinal, Wentworth Street Depot, for the Stepney Borough Council. Mr. M. W. Jameson, borough engineer:—

F. & F. J. Wood	£7,145
Balaam Brothers	7,000
Martin, Wells & Co.	6,700
Patman & Fotheringham, Islington, N.	6,591
J. T. Robey	6,576
M. Calnan & Sons	6,405
R. & E. Evans	6,336
Dove Brothers	6,335
J. Smith & Sons, Ltd.	6,237
Coulsell Brothers	6,181
L. T. Lamplough	5,989
C. Dearing & Son	5,997
Watts, Johnson & Co.	5,977
J. E. Johnson & Son, Leicester	5,916
J. Chessum & Sons	5,788
J. O. Richardson	5,773
A. E. Symes	5,761
H. Lovatt	5,700
S. E. Moss, Southend	5,663
Sabey & Son	5,571
Thomas & Edge,* Anglesea Avenue Woolwich, S.E.	5,463

* Accepted. [Rest of London.]
[Borough engineer's estimate, £6,722.]

London.—For the erection of laundry at the Banstea Road School, for the Metropolitan Asylums Board:—

J. R. Bex, South Croydon	£12,222
Potter Brothers, Horsham	12,138
W. Reason, London, E.C.	11,945
Gardner & Hazell, London, N.	11,916
J. Horrocks, Croydon	11,876
T. Cole, Islington, N.	11,838
Cropley Brothers, Ltd., Epsom	11,829
J. & C. Bowyer, Upper Norwood	11,744
Goddard & Sons, Farnham	11,700
W. Smith & Sons, Croydon	11,528
R. L. Tonge, Watford	11,157
S. Page, Croydon	11,100
J. B. Potter,* Carshalton Road, Sutton	11,099

* Accepted.
[Architect's revised estimate, £12,000.]

London, N.W.—For certain additions and alteration to the Harlesden Public Library, Willesden Junction N.W., for the Willesden District Council. Mr. Joh Cash, F.R.I.B.A., architect, 28 Newman Street, Oxfor Street, W.:—

Spiers & Sons, St. John's Wood	£1,449
J. & W. Easterbrook, Harlesden	1,327
J. Appleby, Lambeth	1,274
L. F. Lamplough, Kensal Rise	1,241
General Builders, Limited, Notting Hill	1,137

London, W.—For the erection of a block of work men's dwellings in Yeldham Road, Hammersmith, fo the Hammersmith Borough Council. Mr. H. Mai M.I.C.E., borough surveyor:—

W. R. & A. Hide	£8,981 0 0
Townsend & Coles	8,446 2 6
Balaam Brothers	6,932 0 0
L. F. Lamplough	6,889 0 0
Wall & Co.	6,778 0 0
Wimpey & Co.	6,748 0 0
Holliday & Greenwood	6,733 0 0
Martin, Wells & Co.	6,600 0 0
Vigor & Co.	6,588 0 0
G. Coffin & Son	6,539 0 0
S. Polden	6,439 0 0
W. J. Renshaw	6,393 0 0
C. Beach	6,288 0 0
J. Chessman & Sons	6,242 0 0
General Builders, Ltd.	6,188 0 0
Simms & Wood	5,994 2 8
S. E. Moss, Southend	5,910 17 0
Scutt & Sons,* 163, Waterloo Road, S.E.	5,545 10 0

* Accepted. [Rest of London.]

Horsforth (near Leeds).—For the following works for the Horsforth Urban District Council:—Open septic tank, rainwater filter, sludge lagoons, storm overflows, manholes, and connecting sewers, &c. Messrs. Spinks & Pilling, 39 Prudential Buildings, Park Row, Leeds, engineers:—

	Brick.	Concrete.
I. Gould, Leeds	£2,503 0 0	£2,554 0 0
Schofield, Sons & Co., Ltd., Leeds	1,933 7 0	1,784 2 0
J. Freeman & Sons, Oldham	1,877 0 0	1,786 0 0
Parkin & Co., Horsforth	1,851 15 0	1,888 8 0
J. W. Greaves & Co., Calverley	1,751 7 0	1,719 10 0
A. Braithwaite & Co., Leeds	1,729 18 7	1,779 6 7
H. Arnold & Son, Leeds and Doncaster	1,685 0 0	1,595 0 0
Ward & Tetley, Bradford	1,625 6 0	1,642 12 0
H. Wilson, Bradford	1,532 10 0	1,465 0 0
D. Jones & Co., Batley (Ferro-concrete)	—	1,470 0 0
Do. do.	1,518 9 6	1,498 3 11
J. Bentley, Bradford	1,501 7 5	1,475 8 3
S. Naylor,* Long Row, Horsforth	1,471 16 1	1,434 7 5

* Accepted.

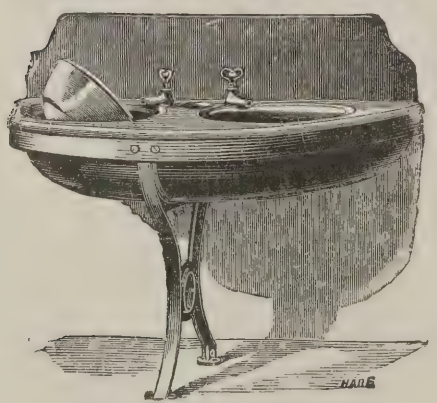
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London, W.—For pulling down and re-erecting 64-67, Tottenham Court Road, W., being the second portion of new premises for Messrs. E. Catesby & Sons. Mr. Henry A. Whitburn, architect, 22, Surrey Street, W.C, and Woking. Quantities by Mr. J. T. Carew, 22, Surrey Street :—

J. Marsland	£12,252	Richards & Co.	£11 839
Burman & Sons	12,145	Smith & Sons	11,550
Mattock Brothers	11,927	Patman & Fotheringham*	11,093
H. M. Dove	11,920		
J. Carmichael	11,848		

* Accepted.

London, S.W.—For making-up and paving Lysia Street, for the Fulham Borough Council. Mr. Francis Wood, A.M.I.C.E., F.G.S., borough surveyor :—

Footway.

Adamant Stone Co.	£300	0	0
Imperial Stone Co.	299	0	0
Victoria Stone Co.*	280	0	0
Patent Indurated Stone Co.	259	10	0
Excelsior Stone Co.	235	0	0

Roadway.

G. Wimpey & Co.	£1,200	0	0
E. Parry & Co.	1,176	0	0
J. Ball	1,146	16	3
B. Nowell & Co.	1,120	0	0
H. J. Greenham*	1,085	0	0

* Accepted.

Parkstone (Dorset).—For the erection of new offices, Upper Parkstone, for the Wilts and Dorset Banking Co., Ltd. Mr. Walter Andrew, architect, Parkstone :—

J. Wright	£3,568	5	6
W. J Cross	3,116	17	6
Miller & Sons	3,090	0	0
J. H. Wilson	2,940	0	0
A. & F. Wilson	2,900	0	0
Baker & Pearcy,* Parkstone	2,806	16	4

* Accepted.

Rhymney (Mon.).—For the erection of a cottage hospital, &c., at Rhymney, Mon., for the Committee of the Rhymney Doctors' Fund. Messrs. Llewellin, Smith & Davies, architects, Aberdare :—

Davies & Francis, Pontlottyn	£2,605
E. Gronow, Clare Road, Cardiff	2,496
J. Morgan, Brynteg, Blaenavon	2,452
T. F. Howells, 17, Wellfield Place, Cardiff	2,446
T. Jones, 4, C.M. Chapel Houses, Rhymney	2,445
W. Williams & Son,* New Tredegar	2,285

* Accepted.

Purley.—For enlarging the Warehousemen's, Drapers' and Clerks' School at Russell Hill, for the Governors. Mr. George Lethbridge, F.R.I.B.A., architect, 7, Drapers' Gardens, E.C. :—

Kilby & Gayford	£4,638
C. Wall & Co.	4,621
Colls & Son	4,550
Dawson & Son	4,519
C. Adcock & Son, Dover	4,480
Turtle & Appleton	4,480
Smith & Sons	4,437
Willmot & Sons	4,387
Buckland & Waters,* Redhill	4,375

* Accepted. [Rest of London.]

Radley College, Berks.—For the erection of a cottage at Radley College, Berkshire, for Mr. F. J. Barmby. Mr. Herbert Quinton, architect and surveyor, 22, George Street, Oxford. Quantities by the architect :—

Brucker Brothers	£1,250
Kingerlee & Sons	1,020
Knowles & Son	989
W. H. Gray	960
J. Wooldridge*	942

* Accepted subject to reductions.
[All of Oxford.]

Richmond (Surrey).—For the erection of a new dining-hall and laundry buildings at the workhouse, for the Guardians. Mr. Edward J. Partridge, F.S.I., architect, Bank Chambers, Richmond, and 50, Lincoln's Inn Fields, London, W.C. :—

J. W. Brooking, Richmond	£23,957
Kellet, Willesden	23,160
Martin, Wells & Co., Vauxhall	22,915
S. N. Soole & Son, Richmond	22,813
Nightingale, Albert Works, Lambeth	22,500
W. Smith & Sons, Croydon	21,625
J. M. Patrick, Wandsworth	21,290
J. Shillitoe & Son,* Bury St. Edmunds	21,000

* Accepted.

Stockport.—For the manual and team labour and materials required in excavating, sewering, forming, paving, kerbing and flagging the following streets within the borough—namely, Myrtle Street, Sycamore Street, Ash Street, Oak Street, and Passages 1 and 2, off Myrtle Street—for the Highways and Sewers Committee. Mr. John Atkinson, A.M.I.C.E., borough surveyor :—

W. H. Williams, Stockport	£1,664	2	8
N. Beddow & Co., Pendlebury	1,584	8	3
Gosling & Stafford, Hazel Grove	1,488	12	0
W. H. Eva, Stockport	1,360	18	10
P. D. & S. D. Hayes,* 35, Old Road, Stockport	1,296	11	0

* Accepted.

West Ham.—For the erection of the Whalebone Lane Higher Elementary Shools, Stratford, E., for the West Ham School Board. Mr. William Jacques, architect. 2, Fen Court, E.C. Quantities by Messrs. R. L. Curtis & Sons :—

W. Gladding	£35,347	Gregar & Son	29,829
Battley, Sons & Holness	30,640	W. J. Maddison	29,187
Stimpson & Co.	30,330	A. Reed	29,096
G. Sharpe	30,103	A. E. Symes,* Stratford	28,402
Holliday & Greenwood	29,893		

* Accepted subject to the approval of the Board of Education.

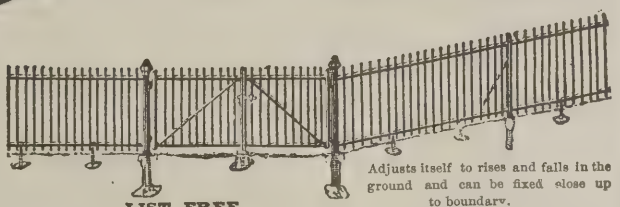
Croydon.—Accepted for furniture to be fixed at "Swan and Sugar Loaf" Hotel, Brighton Road, Croydon, for J. E. Brown, Esq. Mr. Frank Windsor, architect and designer, 9 and 10, Bank Buildings, George Street, Croydon :—

Waring & Co. .. £143

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TENDERS—*cont.*

Stretford.—For terra-cotta work in the erection of generating station, for the Stretford Urban District Council. Mr. Ernest Woodhouse, architect, 88, Mosley Street, Manchester:—

Crossley & Sons, Ltd., Middlesborough	£966 18 6
Trustees of S. E. Clarke, Wrexham	965 10 0
H. R. Bowers, Ruabon	918 13 8
Hathern Station Co., Loughborough	916 6 7
Coalville, Sandford & Co., Coalville	913 0 0
Doulton & Co., Ltd., London, S.E.	850 0 0
The Burmantolts Works, Leeds	822 5 0
Gibbs & Canning, Ltd., Farnworth	800 10 0
Jabez Thompson, Northwich	765 0 0
H. Stephenson & Son., Ltd., Accrington	760 10 0
J. C. Edwards, Ruabon	755 8 6
Whitwich Colliery Co., Coalville	731 3 6
The Bispham Hall Co., Orrell, near Wigan	701 10 6
J. J. Lee, Manchester	695 0 0
The Staffordshire Brick and Terra-Cotta Co.,* Hednesford	550 0 0

* Accepted.

Woking (Surrey).—For the erection of a new residence, for Mr. C. J. Butler. Mr. Henry A. Whitburn, architect, 22, Surrey Street, W.C., and Woking:—

Martin Wells	£2,350	Drowley	£2,118
A. A. Gale	2,284	J. Whitburn	2,090
G. Kemp	2,198	Harris & Son,* Woking	2,049
Ingram	2,197		

* Accepted.

Current Market Prices.

FORAGE.

		£ s. d.	£ s. d.
Beans	per qr.	1 15 0	2 0 0
Clover, best	per load	4 15 0	5 7 6
Hay, best	do.	4 10 0	5 0 0
Sainfoin mixture	do.	4 10 0	5 5 0
Straw	do.	1 10 0	2 4 0

OILS AND PAINTS.

Castor Oil, French	per cwt.	1 5 9	—
Colza Oil, English	do.	1 5 6	—
Copperas	per ton	2 0 0	—
Lard Oil	per cwt.	2 13 0	2 14 0
Lead, white, ground, carbonate	do.	1 4 10	—
Do. red	do.	1 0 4½	
Linseed Oil, barrels	do.	1 6 9	—
Petroleum, American	per gal.	0 0 5½	0 0 5⅝
Do. Russian	do.	0 0 4⅝	6 0 5
Pitch	per barrel	0 7 0	
Shellac, orange	per cwt.	5 13 0	5 14 0
Soda, crystals	per ton	3 2 6	3 5 0
Tallow, Home Melt	per cwt.	1 9 9	1 10 0
Tar, Stockholm	per barrel	1 1 6	—
Turpentine	per cwt.	1 17 3	—

METALS.

Copper, sheet, strong	per ton	69 0 0	—
Iron, Staffs., bar	do.	6 10 0	8 10 0
Do. Galvanised Corrugated sheet	do.	11 5 0	11 10 0
Lead, pig, Soft Foreign	do.	10 15 0	10 16 3
Do. do. English common brands	do.	11 1 3	—
Do. sheet, English 3lb. per sq. ft. and upwards	do.	13 10 0	
Do. pipe	do.	14 0 0	—
Nails, cut clasp, 3in. to 6in.	do.	9 5 0	—
Do. floor brads	do.	9 0 0	—
Steel, Staffs., Girders and Angles	do.	5 15 0	6 5 0
Do. do. Mild bars	do.	6 10 0	7 0 0
Tin, Foreign	per ton	113 12 6	114 2 6
Do. English ingots	do.	114 0 0	116 0 0
Zinc, sheets, Silesian	do.	24 0 0	—
Do. do. Vieille Montaigne	do.	24 0 0	—
Do. Spelter	do.	19 7 6	19 12 6

TIMBER.

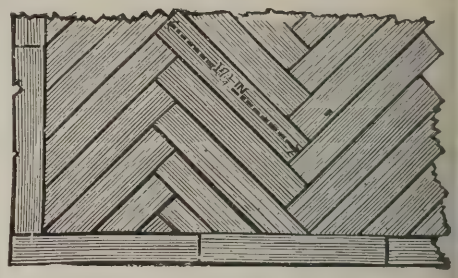
SOFT WOODS.

Fir, Dantzic and Memel	per load	1 13 0	3 0 0
Pine, Quebec, Yellow	per load	5 5 0	6 5 0
Do. Pitch	do.	2 17 0	3 13 0
Laths, log, Dantzic	per fath.	4 10 0	5 10 0
Do. Petersburg	per bundle	0 0 8	—
Deals, Archangel 2nd & 1st	per P.Std.	9 15 0	24 15 0
Do. do. 4th & 3rd	do.	9 0 0	15 15 0
Do. do. unsorted	do.	5 12 6	6 10 0
Do. Riga	do.	6 15 0	12 10 0
Do. Petersburg 1st Yellow	do.	16 5 0	—
Do. do. 2nd „	do.	9 0 0	12 10 0
Do. do. White	do.	7 5 0	12 10 0
Do. Swedish	do.	5 15 0	15 5 0
Do. White Sea	do.	13 5 0	17 5 0
Deals Quebec Pine, 1st	Per P. Std.	16 5 0	22 5 0
Do. do. 2nd	do.	13 0 0	—
Do. do. 3rd &c.	do.	9 10 0	11 0 0
Do. Canadian Spruce 1st	do.	—	12 10 0
Do. do. 3rd & 2nd	do.	10 0 0	10 10 0
Do. New Brunswick	do.	7 5 0	8 0 0
Battens, all kinds	do	6 0 0	16 0 0
Flooring Boards 11in. prepared, 1st	per square	0 10 0	0 11 3
Do. 2nd	do	0 8 6	0 10 3
Do. 3rd &c.	do	0 7 3	0 8 9

HARD WOODS.

Ash, Quebec	per load	3 17 6	5 15 0
Birch, Quebec	do.	3 12 6	3 17 6
Box, Turkey	per ton	15 0 0	20 0 0
Cedar, Cuba	per ft. sup.	0 0 3⅜	0 0 5
Do. Honduras	do.	0 0 4 15/32	—

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17½ × 3 × 1½	6 10	6 3	11 2



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THE BUILDERS' JOURNAL AND ARCHITECTURAL RECORD

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An Architectural Causerie.

A Town Hall Competition.

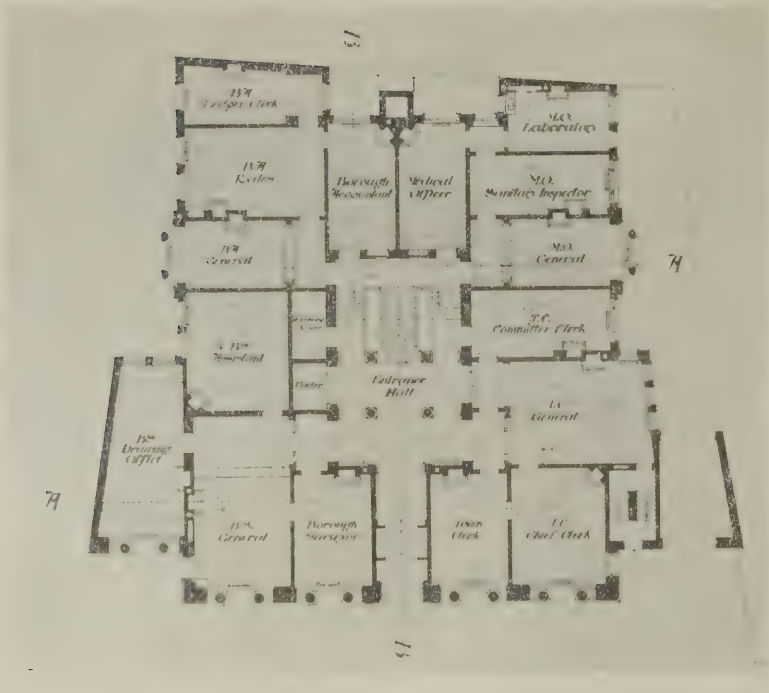
It seems rather absurd to have to emphasize that the main feature in a block of municipal buildings should be the council chamber; and recalling the notable old examples throughout the country, and the very proper and excellent creed of designing buildings so that they express, or at least indicate, their purpose on the front, one is greatly surprised at the majority of the designs sent in for new municipal buildings at Deptford. Forty-five sets were received, mostly from London architects, yet those which have the council chamber at the front can be counted on the fingers of one hand; for in the majority of cases this room, which is essentially *the* room in the whole building, is relegated to the back, though one competitor has the ingenuity to place it on one side. As a whole the designs do not impress with their brilliancy of planning or beauty of elevation. The site itself, facing New Cross Road, is an awkward one, being somewhat of a trapezoid in shape, which, with the other difficulties of accommodation, light and air, has made the problem a difficult one to solve satisfactorily. The first-premiated design (by Messrs. Lanchester, Stewart & Rickards) has, in our opinion, far and away the best plan of the whole collection. It is straightforward, and makes good use of the available space, the arrangement of the council chamber on the front with the mayor's parlour on one side and the kitchen and service on the other, in conjunction with retiring and committee rooms, being excellent. We are able to give the ground, first-floor and mezzanine plans on the next page, while the front is illustrated on this. This front is pleasing in its general effect, and the suggestion of Deptford's sea glories is interesting; but the clock tower is not altogether happy, and, with so low a building, it is perhaps a question whether a little more emphasis of the vertical would not have been an improvement. Of the second-premiated design (by Messrs. S. B. Russell and C. E. Mallows) there is not much to say. Here again the council chamber is put out of sight and the whole treatment is rather poor; the drawing itself, like that of a second design sent in by the same architects, though very admirably done, is somewhat amusing in its exaggeration of the majesty of the building. The third-premiated design (by Mr. Arthur J. Gale) needs no special comment. Of the rest of the designs we may mention a few. Mr. T. Frederick Pennington's stands up well, though the porch is rather weak in comparison with the massiveness of the other parts; but it is a bold conception. No. 17, by Messrs. Butler Wilson & Oglesby, is fresh in treatment and rather fine in effect. No. 40, Messrs. Banister F. Fletcher and H. Phillips Fletcher, is also deserving of attention; and note should be made of the conical ventilating shaft over the council chamber. No. 13 (Messrs. Crouch & Butler) and No. 15 (Messrs. Wills & Anderson) have good features; No. 35 is represented by a brilliant wash drawing; No. 41 spends a good deal of his money on a huge tower which is not wanted; No. 29 looks like half-a-dozen houses adapted for the purpose in view; No. 18 is extremely ingenious in leaving mysterious spaces between his walls when they are inconvenient to the squareness of his rooms; and Nos. 20 and 21 are more than dimly reminiscent of Colchester Town Hall, a characteristic, however, which they do not share alone. The exhibition of the designs at Sayes Court Hall, Evelyn Street, Deptford, S.E., closes to-day. Mr. John Belcher, A.R.A., was the assessor in the competition, and the cost of the building was limited to £30,000.



DEPTFORD MUNICIPAL BUILDINGS COMPETITION: FIRST PREMIATED DESIGN.
LANCHESTER, STEWART AND RICKARDS, ARCHITECTS.

A Code of Etiquette for Engineers.

Readers may perhaps remember that some time ago we published an American code of ethics for architects. We now have an English one for engineers. The Council of the Institution of Electrical Engineers have addressed a circular letter to the clerks of some of the larger counties and boroughs calling their attention to the code of etiquette which, in the opinion of the Council, ought to govern all those belonging to the Institution. They at the same time point out that by advertising or by employing those who solicit employment, either directly or by agents, local authorities may deprive themselves of the services of electrical engineers of high standing and great experience. The "Code of Etiquette" is as follows:—(1) No consulting engineer should solicit employment as consulting engineer verbally, by letter, by agent paid by commission or otherwise, or by any other means. (2) No consulting engineer should answer advertisements for consulting engineers. (3) No consulting engineer should advertise for employment. (4) No consulting engineer should pay by commission or otherwise anyone who introduces clients. (5) No consulting engineer should receive trade or other discount, or surreptitious commissions or allowances in connection with any works



DEPTFORD MUNICIPAL BUILDINGS: GROUND-FLOOR PLAN.

which he superintends. (6) A consulting engineer who is also directly or indirectly interested in any contracting or manufacturing business should inform his client in writing what his connection is with such contractor. Architects will doubtless read this with interest.

LIGHT, HEAT AND SMOKE.

Forthcoming Exhibition at the Crystal Palace.

A LIGHTING, heating and smoke abatement exhibition is to be opened at the Crystal Palace on Saturday, December 13th, and will remain open for five weeks. Preparations for a really representative display were commenced many months ago, and from the progress already made there is no doubt that the forthcoming exhibition will cover a much wider sphere than that held last year, and, in addition, all the latest and most recent improvements in gas lighting and heating will be included.

The most important new feature of the exhibition will be the Coal Smoke Abatement Section, which is being organised under the patronage of the Coal Smoke Abatement Society. No branch of modern hygiene deserves greater consideration than that dealing with the question of getting rid of the obnoxious products of combustion of coal, and it is with the object of drawing increased attention to this very urgent subject, and interesting those more directly concerned, that the Society are offering a prize of £50 for the best domestic open gate which in the opinion of a jury (to be appointed by Sir William B. Richmond, president of the Society) is best capable of consuming its own smoke. The section will be situated in the centre transept, while a further space in the building will be set aside where exhibitors can show their various appliances in operation.

The Gas Engineering Section, in which all the most up-to-date contrivances for the more efficient and economic uses of gas will be incorporated, will possess many unique inventions of interest. The latest advances in gas cooking and warming apparatus will be exhibited, and meters of all kinds will be on view. Every description of gas plant and labour-saving appliance for the manufacture of gas will also be able to be inspected. A further section will, of course, be devoted to gas-engines, and also another for colliery exhibits of various coals. The Electrical Section will be fully representative of the industry. The promoters of the exhibition have secured the support of the Acetylene Association, which should ensure this branch being particularly attractive. Next year at about the same time an international exhibition of a similar character is to be held at the Crystal Palace.

OUR NEW COMPETITION.

PRIZES: £5 5s.; £3 3s.; £2 2s.

WE publish this week full particulars of the competition which was briefly announced in our last issue.

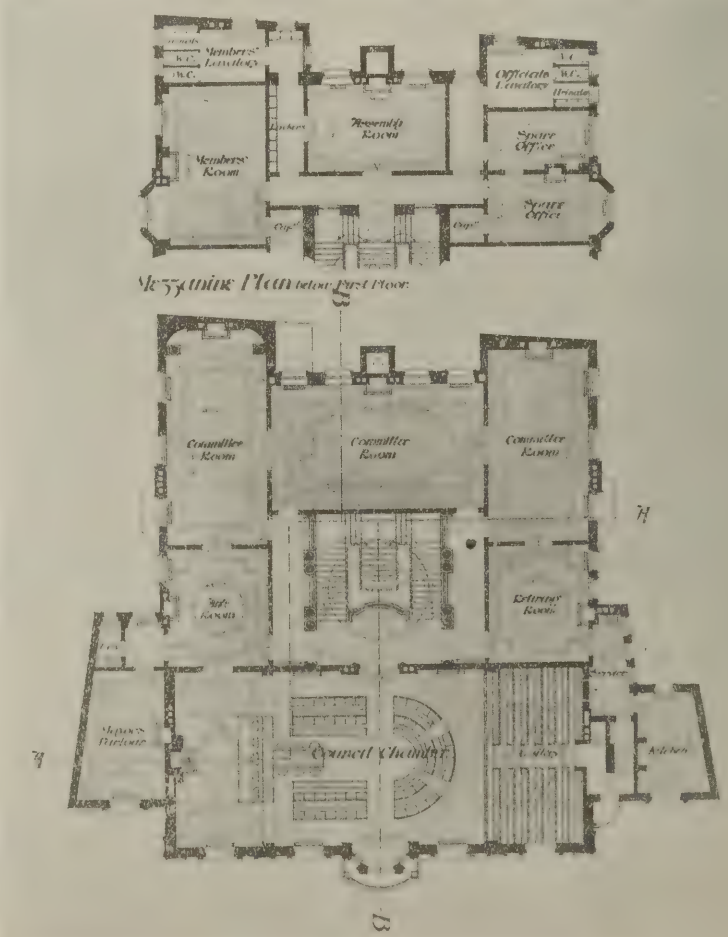
The problem set is to re-design *the front* of No. 182, Fleet Street, occupied for the most part by Messrs. Carl Hentschel, Ltd., the well-known firm of photo-engravers. We should like it to be clearly understood, however, that there is no intention of having this remodelled front actually carried out, the premises having been chosen simply on account of their suitability for the purpose of our competition; which purpose is primarily to get students to think out a problem which will doubtless recur in their subsequent career as practising architects.

To re-design such a front so that it complies with all requirements and produces a masterly refined effect is task enough for anyone; and it is with that aim before them we wish all competitors to work. We want no mere stock pattern, no insipid copy of another man's conception, no rubbishy hotch-potch; and while we desire the treatment to be essentially modern—of our own time and carried out under our own conditions—we want none of that rampant uselessness and affected eccentricity which passes current under the name of "Art Nouveau."

The front must be a logical outcome of the conditions, accepted frankly, and expressive of the functions of the building: and the ornamentation should be suggestive of the uses to which the building is put. Provision should be made for a sun blind over the shop.

The following are the conditions of the competition:—

(1) Materials—bricks; with stone dressings optional. Terra-cotta and glazed faïence not admissible. Material for roof optional, but risks of fire to be strictly considered. Exposed ironwork permissible.



DEPTFORD MUNICIPAL BUILDINGS COMPETITION: FIRST-FLOOR PLAN OF FIRST PREMIATED DESIGN. LANCHESTER, STEWART AND RICKARDS, ARCHITECTS.

(2) The general dimensions of the existing building, illustrated on this page, are to be adhered to, but variations may be made where utility suggests.

(3) Regulations of the London Building Acts to be observed.

(4) Cost—no fixed sum is stipulated, but the cost must be reasonable.

(5) Proper provision to be made for lighting and ventilation.

(6) Provision to be made for displaying the names of the users of the building, namely, Carl Hentschel & Co., Ltd., and The British Tea-Table Co., 1897, Ltd.

(7) Drawings required—front elevation; section of front showing ends of floors; plans at ground and first-floor levels, and others (to show projections) if thought desirable; one sheet of details.

(8) All drawings, except details, to be drawn to ¼in. scale; details, ½in. scale.

(9) All drawings to be on white paper of Imperial size (30in. by 22in.) and to be arranged in the following manner—on the one sheet, the elevation, the section at the right-hand side of it, and the plans arranged underneath; a scale to be drawn below the plans. On the second sheet the details, also with scale. Drawings to be unmounted and to have the name and address of the author written in ink on the back

(10) All drawings to be in black and white—clean line work *without wash or colour, pencil or crayon, of any sort;* sections and plans to have walls blacked in solid wherever possible. Neat and accurate draughtmanship will be taken account of in the judging.

(11) A short description to accompany each design, giving particulars of materials employed, &c.

(12) Premiums—first, £5 5s.; second, £3 3s.; third, £2 2s.: all or any of which the assessors reserve the right to withhold if, in their judgment, the designs are not of sufficient merit.

(13) The assessors will be the editors of The Builders' Journal, whose decision will be final.

(14) The drawings will remain the property of their authors, but we reserve the right to reproduce any we think fit. Endeavour will be made to return the drawings to the competitors in good condition, but we do not hold ourselves responsible for any damage or loss.

(15) All drawings to be sent in addressed to the Editor of The Builders' Journal, Effingham House, Arundel Street, Strand, London, W.C., so as to reach him not before November 25th next and not after December 1st next.

(16) Any design will be excluded from the competition which violates any of the instructions here given, or which is received after December 1st next (accidents in transit excepted).

Dimensions.

The following are the dimensions of the existing building:—

Ground Floor:
- Width of pilaster (A)—see illustration on this page—1ft. 2in.
- Width from outside of pilaster (A) to centre of left-hand window bead—6ft. 4in.
- Width of shop window—9ft. 11in.
- Width of pilasters (B, B)—1ft. each.
- Width of door opening in the recess next to (A)—3ft. 11in.
- Width of door opening between (B) and (B)—3ft. 6in.
- Entire width across front, between outside edges of (A) and (B)—21ft. 9in.
- Height from top of glazed sill-board below shop window to pavement—2ft. 3in.
- Depth of shop entrance (next to A)—3ft. 4½in.
- Height from pavement to lead flat over fascia-board above shop—12ft. 6in.
- Height of fascia—1ft. 6in.



First Floor:
- Windows—8ft. by 3ft. 2in.
- Width between window openings—3ft. 5in.
- Height of room inside—10ft. 8in.
- Height from sill level to floor inside—1ft. 10½in.

Second Floor:
- Windows—6ft by 3ft. 2in.
- Height of room inside—8ft. 7in.
- Height from sill level to floor inside—2ft. 3in.
- Height from top of sill on second floor to top of drip moulding over first-floor windows—2ft. 3in.
- Height from top of sill on second floor to top of lead flat above fascia—12ft. 2in.

Third Floor:
- Windows—4ft. 10in. by 3ft. 2in.
- Height of room inside—7ft. 1in.
- Height from top of sill on third floor to top of sill on second floor—9ft. 5in.

Fourth Floor:
- Height of room inside—9ft.
- Height of bench by windows—3ft.
- Height from top of balustrade to top cornice—3ft. 5in.
- Height from top of balustrade to top of sill on third floor—12ft. 2in.

Entire height of building—50ft.

The existing building is fronted with stucco painted ochre colour. The front wall is about 18in. thick.

The ground floor is taken up by the restaurant, and has a counter placed along the right-hand wall. There is a screen directly inside the swing doors to shield diners at the tables from observation and to protect them from draughts.

The first floor is used by Messrs. Carl Hentschel as a general office for the receipt and despatch of drawings and printing blocks. The window on the left-hand side at present lights a telephone office with a desk in the window. This office is formed by a partition which meets the wall between the left window and middle window close to the latter.

On the second floor are a number of proofing machines, and a bench under the window upon which several men are engaged in retouching blocks.

The third floor is occupied with machinery for bevelling, rouletting the blocks, &c., and requires a good light. The window on the left-hand side lights a small square office for the secretary, partitioned off from the rest of the room. This partition cuts the front in the centre of the dividing wall between the left and middle windows.

The fourth floor is used for reproducing drawings by photography, and does not need much light.

It is to be observed that drawings should show only the building in question and not the new building to the right, which is only included in the above illustration to show how the premises are situated. (The street shown on the extreme right of the illustration is Fetter Lane.)

ST. THOMAS À BECKET, WARBLINGTON.

By J. RUSSELL LARKBY.

THE church of St. Thomas à Becket at Warblington, although containing some most interesting features, is one of the least known buildings in the district. It does not, from a point of architectural unity, compare with South Hayling, neither does it rise to the importance of the central tower at East Meon (see THE BUILDERS' JOURNAL for August 13th last); but, embracing work of the Saxon, Early English and Decorated periods, it well represents the gradual development of a very ancient church, when

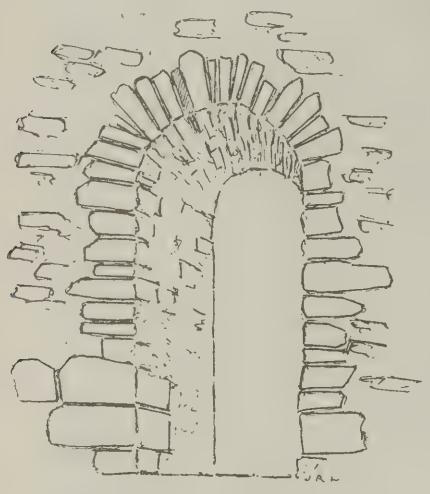


FIG. 1.—SAXON WINDOW IN TOWER.

strength was an absolute necessity, to that time in the thirteenth century when the heavy methods of the Normans gave place to the lightness of the Early English architect.

Owing to its lonely position by the Old Langstone Harbour, the church is now visited by few persons who take even a more than casual interest in ecclesiastical architecture. It is never mentioned in the usual lists of Saxon buildings, yet the remains, if small, are certainly of interest as throwing some light on the architectural development of the structure. The Saxon work referred to is in the tower, and comprises only the lower external stage easily identified by the rude character of the masonry; the walls are pierced by Saxon windows now forming exits to the roof. These arches (Fig. 1) are round-headed, constructed of large blocks of rough-hewn stones with portions of brick at intervals, which seem to be of Roman origin.

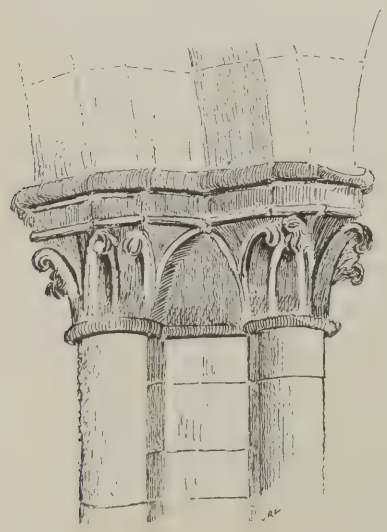


FIG. 2.—CAPITAL IN NAVE.

There are no other portions of the church which can be pronounced as Saxon *in situ*; at the same time, I am not at all prepared to say that some of the masonry, especially that in the fifteenth-century Lady Chapel, did not come from the Saxon building. Some of the masonry in the north wall of this chapel is built up in pilaster-like stripes, but flush with the surface; this may have been an idea derived by the fifteenth-century builders from what they had seen of the old Saxon church. What may be other remains of Saxon work moved from its original position seem to exist in the filling-up of the fifteenth-century door in the south wall of the nave. Some of these stones measured 24in. by 6in., 20in. by 5½in., and others 21in. by 3in. It is quite possible that these came from an earlier building. All other vestiges of the Saxon church have now disappeared, but I think the present Decorated chancel may be looked upon as occupying its site, and that it extended as far west as the tower, which from its early remains evidently marks the western termination of that church. Saxon towers are often of small dimensions, and usually without constructional staircases, for greater safety during the troublous times of the pre-Conquest period. From the scanty remains of the Saxon tower at Warblington it is rather difficult to give a decided opinion, but it certainly well agrees with the tests usually applied to pre-Conquest structures. There is every reason why here the Saxon church should be a tower of strength, exposed as it undoubtedly was to the fierce attacks of hostile people.



FIG 3.—CAPITAL IN NAVE.

The structural alterations followed a somewhat unusual course, but they may be easily read, and to deal with them in chronological sequence a beginning must be made with the nave. This I take to be an entire departure from the original ground plan, and dating from the earlier half of the thirteenth century. This nave was built on to the then existing Saxon church, thus transforming the old western tower into a central tower. Now, the purpose of a central tower is to bind in one the whole fabric of a church, and to be a culminating point on which the eye may rest, as at East Meon or South Hayling. The diminutive character of the Warblington tower is quite unsuited to this purpose, and adds nothing to the external proportion of the building. It seems probable that the thirteenth-century architect foresaw this result, and he therefore carried up the tower to in some measure remedy the defect, which, however, still remains. The whole of the nave work is of the thirteenth century, with the exception of the windows, which are nearly all still later insertions. The piers of the south arcade are peculiarly beautiful examples of Early English carving; the central support is octagonal, and surrounded by four slender circular columns of Purbeck marble. This material is also used in the capitals and bases, which is sufficiently uncommon to be of interest. The effect, perhaps, is not so beautiful as when a whiter material is used, as there is a lack of light and shadow, the peculiar beauty of thirteenth-century foliage; but, on the other hand, a strangely rich appearance is obtained (Figs. 2 and 3). The piers of the north arcade are entirely different in form, and the reader is referred to Fig. 4 in order to see the inferior character of this work when compared to that in the south aisle. It is difficult to account for this curious divergence in two arcades of practically the same date.

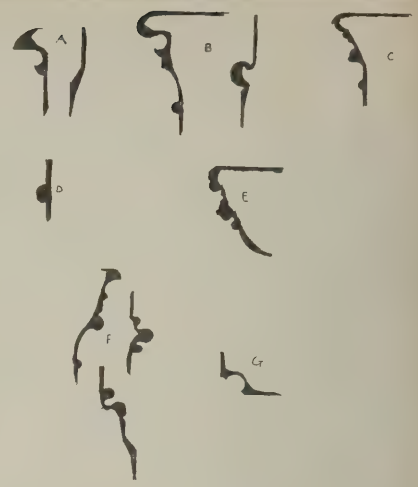


FIG. 4.—MOULDINGS.

A, West respond of north arcade; B, capital and base, north arcade; C, capital, eastern arch under tower; D, Decorated string in chancel; E bowl of piscina in north aisle chapel; F, capital, band and base, east respond of south arcade; G, piscina, south aisle chapel.

At the east end of the north aisle a poor modern screen marks the position of a chapel in which is the good Early English piscina (see Fig. 4, E). The chapel floor has a large thirteenth-century coffin slab of Purbeck marble, probably of the founder of the chantry of which this is the chapel. The south aisle has a corresponding chapel, and a fourteenth-century piscina in its south wall. In the north wall is the recumbent effigy of a young girl in the costume of the latter part of the fourteenth century (Fig. 5). It was originally found under the eastern bay of the south arcade, and then removed and placed under a poor niche of the fifteenth century. The figure is quite uninscribed if we except much modern vandalism. On the floor of the chapel is a coffin slab showing some signs of a floriated cross now too badly mutilated to be of any great interest.

In the north wall of the nave, under a niche never intended for it, is the recumbent effigy of a woman, shown in Fig. 6. There is a tradition in the district that these two ladies desired to build the nave, but could not agree as to the exact design of the new work. As both were equally determined to build according to fancy, each lady followed her own inclinations; hence arose the divergence of style. The story is pretty so far as it goes, but, unfortunately for it, the effigy in the north wall (Fig. 6) antedates everything in the church except the Saxon remains, and the effigy in the south chapel is the latest thing in the church except its canopy, with which it has no relation. I do not for one



FIG. 5.—EFFIGY IN SOUTH AISLE CHAPEL.

moment deny that they may have been benefactresses of the church, but as to their being joint builders of the nave a slight glance at the figures is quite sufficient to serve as an emphatic denial. The effigy in the north wall is of Purbeck marble or some kindred hard material—consequently the drapery is but slightly in relief; the eyes have that peculiar almond-shape and vacant expression so often seen in Norman work.

Leaving the nave, the arch supporting the tower may be brought under notice. Originally, of course, this spot was the western termination of the Saxon nave, but when in the thirteenth century the present nave was added the old wall was destroyed

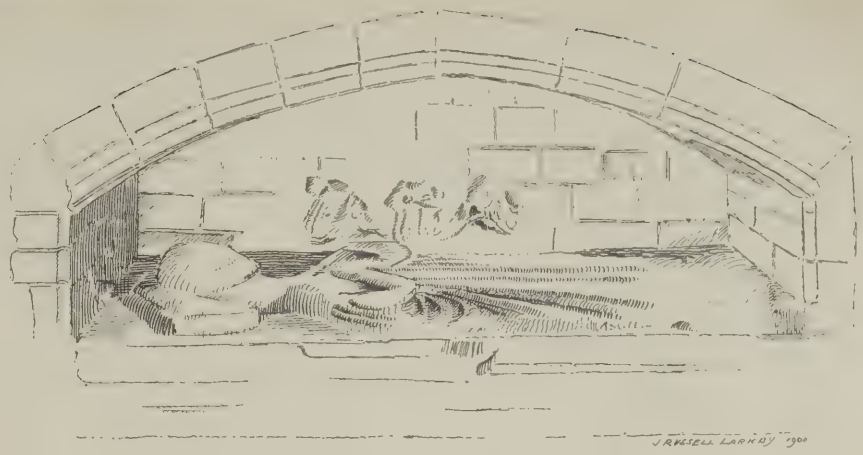


FIG. 6.—EFFIGY IN WALL OF NAVE.



FIG. 8.—EARLY ENGLISH CAPITALS (B, FIG. 7).

and it became necessary to construct arches leading from the Saxon nave (probably still retained as a chancel) to the newly-erected body of the church; from this it will be seen that the Early English architect, with characteristic boldness, cut away a portion of the tower walls and constructed two arches to carry the weight. At this time, too, the tower was carried up two stages above the Saxon work, and with this additional weight it can be well imagined that the slender piers beneath were strained to the uttermost, one eventually collapsing altogether. This is confirmed by a reference to the rough ground plan (Fig. 7). The portion lettered A indicates the fragments of an Early English arch, a companion to that lettered B (the capital of the latter is shown in elevation at Fig. 8). It was seen in the middle of the fourteenth century that these slender columns were no longer capable of bearing the weight of the enlarged tower, and it therefore became necessary to take down the eastern arch and construct in its stead a larger support capable of bearing a great proportion of the strain. This new arch (letter C on plan) is built inside the Early English fragments, and this explains why the Decorated base projects beyond the thirteenth-century columns. A reference to the sketch plan will easily show this curious and interesting method of supporting a tower which had outgrown its inserted supports. The details of the tower arches are shown at Figs. 8, 9 and 10.

Whatever the original chancel may have been, it was entirely renewed during the earlier half of the fourteenth century, as the present long eastern arm dates from that time; it probably includes the site of the Saxon high altar and the whole of the Saxon church — hence its comparatively great length. The architectural details are extremely simple, but it serves as an object-lesson in construction, relying solely on its proportion for effect.

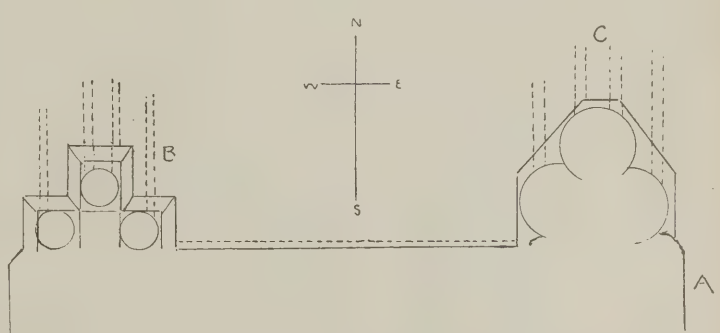


FIG. 7.—SKETCH PLAN OF TOWER SUPPORTS.

The fourteenth-century tiles in the chancel are of great interest as being the only remaining specimens in the district (see Figs. 11 to 14, next page).

Attached to the north wall of the chancel is the Lady Chapel, now used as a priest's vestry; the piscina and canopied credence are both of fifteenth-century work. A rudely-constructed squint pierces the wall of the chapel and bears on the high altar. Beyond this the chapel contains nothing of interest.

The porch in the north wall of the nave is an addition of *circa* 1350; its barge boards are elegantly decorated with pierced cuspings, and the whole of the woodwork has acquired a silver-grey colour by "some six centuries' exposure" to the weather. The door still has its mediæval closing ring.

In passing, some notice should be made of the modern work in the church. Real effect is obtained both in the east window and in the oak roof, but a piece of true restoration—if the expression may be used—would be the removal of the meagre wooden screens of the aisle chapels and some of the glass put in about thirty-five years ago. Nothing so completely spoils the effect of good architecture as bad glass, and here we have a really beautiful interior sadly impaired by much ill-directed energy displayed in some of the nave and chancel windows.

In two of the corners of the churchyard stand small forbidding-looking structures belonging to the truly "Gothic" period of the immediate past. They were erected as watch-houses for the prevention of body-snatching. It is hard not to pity the watcher in this lonely churchyard—a loneliness at times no doubt relieved by a boon companion, animate or inanimate—but still even at that a gruesome loneliness, with the clouds sailing past the moon, the wind and rain beating up with the tide, and—a quick end to the loneliness—over there in the corner a small sudden light, a few swift movements with spades, the professional heaving of a load and a sneaking procession to the water-side completed the science of body-snatching as once practised at Warblington. Now,

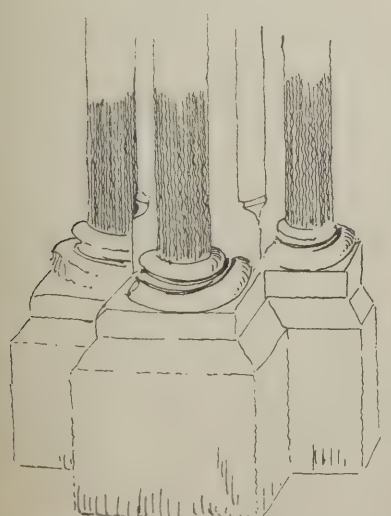


FIG. 9.—EARLY ENGLISH BASE TO TOWER ARCH (B, FIG. 7).

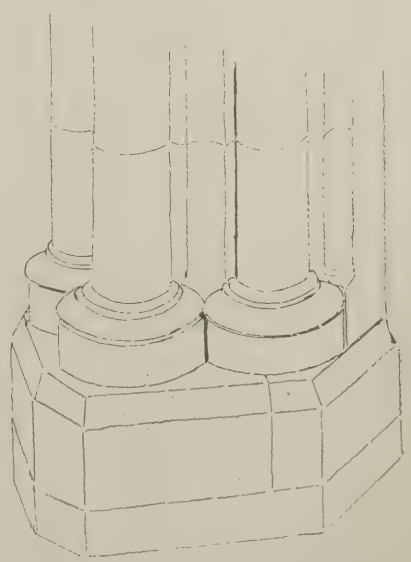


FIG. 10.—DECORATED BASE TO TOWER ARCH (C, FIG. 7).

thank Heaven, the faithful dead are laid to rest in the hope of a *joyful* resurrection, only the watch-houses remaining as witnesses to an unlovely custom of the "good old times."



FIG. 11.—TILE IN SACRARIUM.

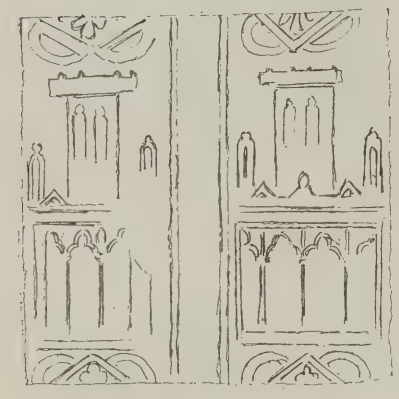


FIG. 12.—TILE IN SACRARIUM.

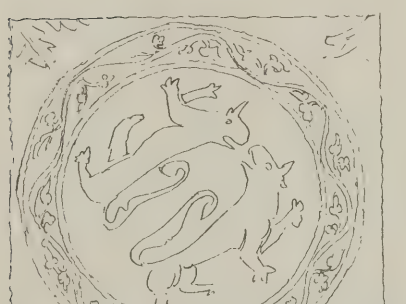


FIG. 13.—TILE IN SACRARIUM.



FIG. 14.—TILE IN CHANCEL.

THE CATHEDRAL FOR LIVERPOOL.

ONE LAYMAN AND ANOTHER.

ON p. 137 of our last issue we referred to the remarks of "A Layman" in regard to the Liverpool Cathedral Competition, published in the "Times." We were glad, however, to see "Another Layman" take up the cudgels. In his letter to the "Times" he says:—

It cannot be the fact, as suggested by "A Layman," that the assessors have "reported as if no candidate who had not sent in special designs was to be considered a candidate at all," since one at least of the selections for the final competition, and more than one for honourable mention, was based upon drawings of work previously executed. . . . It is quite true that busy men cannot be expected to send in specially-prepared designs But when an architect has already executed work on a considerable scale he can, without difficulty, send in on such an occasion some such record of it in the shape of drawings as will really evidence his fitness or otherwise to design an important building. Instead of this, there were architects who sent in some scrap of drawing or photograph of a kind wholly inadequate to form any basis for a judgment as to his powers. If Hercules presents a foot fragile and insufficient as that of a child, the best judge may be pardoned for not realising how gigantic a body there is concealed.

But it may be said that regard should have been had not alone to the material sent in, but to the knowledge which, from other sources, the assessors might be supposed to have of the powers of the competitors. In that case the sending in of drawings at all would have been a farce—a visiting card would have sufficed. Indeed, some of the drawings amounted to little more, and their submission showed a scant respect to the intelligence of the assessors, of which they might well complain. . . .

The circumstance of youth or inexperience in a competitor does not daunt us in Liverpool, where the genius of a youth of twenty-one has left us our St. George's Hall. It may be (though there is no reason to suppose it) that the assessors are mistaken in their estimate of the capacity of the five selected competitors, and that no truly worthy design will be produced by any of them. But not even then will there be realised the fear which your correspondent expressed that the "Liverpool Cathedral movement may end in a fiasco." For the committee are under no obligation to accept any one of the designs, and if the best of them are not good enough others must be obtained which are.

A Letter from Mr. Bodley and Mr. Shaw.

In last Friday's "Times" was published a letter from Mr. G. F. Bodley, R.A., and Mr. R. Norman Shaw, R.A., the advisory architects in the Liverpool Cathedral competition. Referring to the suggestion of "A Layman," they say:—"We are inclined to believe that we did not misunderstand them (the Committee) at all. We are the more inclined to this belief from the fact of the Committee having accepted our report in its entirety and from having refrained from adding the names of any other architects to our list—a power which they expressly reserved, and which they would have been fully justified in exercising had they desired to do so. 'A Layman' is curiously unfortunate (to say the least of it) in his statement that we directed our attention to those competitors who had prepared a special design, and that we gave little care to those who had taken what we described as 'absolutely no trouble.' He says we judged 'the merits of the architects according to the amount of trouble they had taken in this particular competition.'

"The name that stands first in our list is that of architects who sent only old drawings, and who, therefore, must pass into the category of those who took 'no special trouble.' But the work was well designed, and we accepted these old drawings as strong and decisive evidence of skill. So their authors are to be asked to prepare for the final competition a complete design for the cathedral. We think this fact disposes of the whole of 'A Layman's' letter.

"We wonder if the writer of the letter really saw and studied the drawings (there were about 1,200 of them) as carefully as we did, or if he is writing from mere hearsay.

"If he had seen them we believe he would have been as much surprised at the contents of the portfolios as we were. One competitor sent a single plan rather suggestive of the Albert Hall, the entire area being closely seated. In his report he said he had never built any buildings, and that he had been unable to prepare a design, as he had been ill. Another competitor submitted a large chalk drawing of a figure; a third two photos of a brass lectern, and so on. There were many similar, and many designs equally little to the point. We do not for a moment suggest that a man who can draw the figure could not design a cathedral, but we think the Committee would desire to have stronger 'evidence of skill' in the direction of the work they required done. And when, for example, we placed the two photographs of the brass lectern in juxtaposition with thirteen large and carefully-matured drawings of a cathedral, showing fine architectural skill and great knowledge in every line, we contend that we were right in our view that these threw far more light on the question to be decided than the lectern did!

"When we examined the drawings the names and addresses of the competitors were, at our express desire, carefully concealed, so that we knew the designs by numbers only.

"The numbers in our report in no way indicate any order of merit. They are simply in the rotation marked down as the drawings were hung in the galleries."

The First Section of St. Matthew's Church, Southsea, has been opened. Accommodation is now provided for about 900 persons. The centre aisle will be lofty, with the four massive strong pillars in the centre. The altar, although not yet completely furnished, is richly equipped, and as the chancel is raised somewhat high it is easily seen from all parts of the church. The six standard altar-lights are of massive hammered brass, made from special designs by Mr. J. T. Micklethwaite, F.S.A. The organ-loft is a large one, and will accommodate in a few months a magnificent instrument, costing £2,500, now at Merchistoun Hall, Horndean, which will be reconstructed by Messrs. Norman & Beard of Norwich. The next section to be added is now in course of construction, and will consist of the permanent chancel with all its fittings.

Port Sunlight Church, which, through the courtesy of the "Liverpool Post," we are able to illustrate on the opposite page, is now being erected from the designs of Messrs. William & Segar Owen, of Warrington (the drawing was exhibited in this year's Royal Academy). The church is 104ft. long by 30ft. wide, and will provide accommodation for 800 worshippers. The building will be of Helsby dressed stone, both inside and out, with an open-timbered roof; the pews, doors, and other fittings being of pitch-pine and oak. There are special pews for a choir of forty. The floor is of wood blocks, with marble in the aisles and passages. The work is being carried out by Messrs. Lever Brothers' own staff, under the direction of Mr. J. Barnes, building manager.

ARCHITECTURAL DESIGN.

THE first meeting this session of the Architectural Association School of Design was held at 9, Conduit Street, W., on October 14th, the chair being occupied by Mr. Henry T. Hare, F.R.I.B.A. It had been arranged that Mr. Guy Dawber, Mr. Edward S. Prior and Mr. E. W. Mountford should deliver addresses, but the two latter were unable to attend and their place was taken, at short notice, by Mr. Leonard Stokes.

Mr. Guy Dawber's Views.

Mr. Guy Dawber said:—We are all students together, and any advice which I may give must apply to us both. Broadly speaking, design depends a great deal on its environment and the suitability to its purpose; a town house, for instance, with its more or less decorated front hemmed in by blank walls on either side, would be utterly out of place if transported into the country. You know too well that excess of ornament should be avoided, and that it should only be used to complete your design. It is by going over your designs again and again and rubbing out that you will achieve a successful result. I could give you no better instance of this than Mr. Phil May, whose practice it is to eliminate every line that is not needful for his purpose.

Remember that the object of all decoration is to ornament and to adorn, not merely to show off the skill of the designer and the decorator, and unless placed in the right position it will be worse than useless. It is of course impossible to lay down any hard and fast rules, as in all ages opinion has differed as to what is and what is not beautiful. There is much difference of opinion as to how far the architect's work should be influenced by tradition. Some say, go straight to Nature. This is a fine theory, but in practice it does not seem feasible, as architecture is essentially utilitarian, and neither the ant nor the bee will help us to solve our problems, nor will the contemplation of any number of leafy avenues aid us in designing a church or a cathedral.

Study the best modern work as well as the old: and if you see a building which delights your eye, try to dissect it and discover how its effect is produced. The cultivation of this habit will help you to design far more than studying endless books and illustrations and making scores of pretty sketches.

Beauty in architectural design does not result from richness and profusion, but from elegance of form, proportion, harmony of colour and perfection of execution. All materials have their particular limitations and uses. Think of the forms you decide upon and then confine your work within the limits of the materials you select; but do not think that perfection of material and workmanship will atone for feebleness of design.

Make up your mind first of what you will build with—whether your walls shall be of rubble or ashlar or your roofs covered with tiles or slates. If of brick, confine your design to the limits of that material. If you employ plaster, remember it requires to be used broadly and simply. Abhor shams of every kind.

Note the ways in which others have produced effects, for it is only by continually absorbing work both old and new that your own will be made estimable. Avoid all tricks and mannerisms, and remember that it is the essence of good architectural drawing to make it intelligible to the workman who will be required to carry it out. It is an admirable plan to try to picture in the mind's eye the finished work. If you train yourself to do this you will be surprised to find how helpful the practice is. Then, after thinking out the mass, study the detail. Detail makes perfection and you should endeavour to make your work as perfect as possible in every way. Remember that eccentricity is not synonymous with genius. In architecture and decoration there is a strong movement throughout the country not only to treat material sensibly but to exhibit a freshness in treatment. Servile imitation is a disease. We need a revival of the old simple forms and feeling with the addition of the knowledge to-day. But guard against being too original, else you will stand in danger of getting into the slough of the New Art, with its crawling line, and its treatment of wood and stone as if they were copper wire. Ornament must follow construction; and though the tendency is to be original yet I think that much of what we see around us is only ephemeral. Many of those who condemn our modern architecture, and point slightingly to the past, forget that the old builders had not the same difficulties to confront which we have—the needs of to-day, the use of iron and steel, the limitations imposed by towns—all these things have to be considered in forming a judgment.

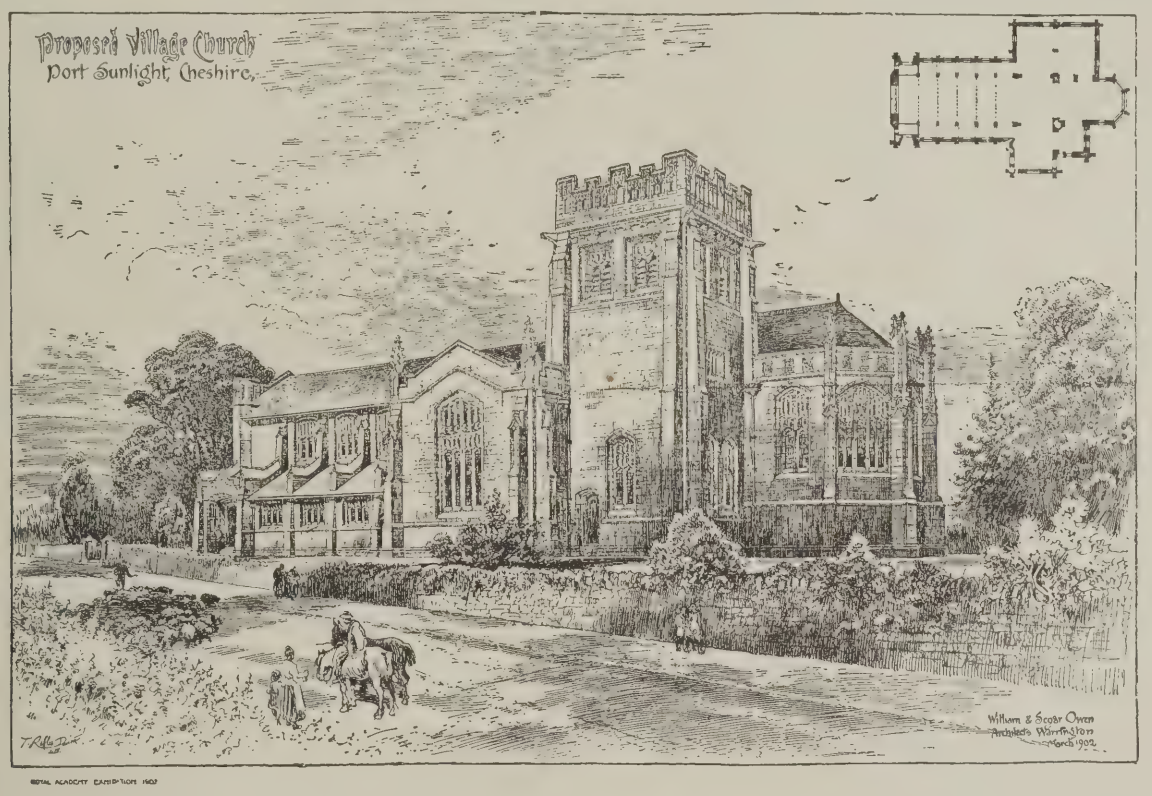
Think over these matters and remember, above all, that your designs should be honest endeavours to adapt our art to everyday requirements, and that we should try to make them a real benefit and force in the architecture of our day.

Mr. Leonard Stokes's Remarks.

Mr. Leonard Stokes, who spoke from a few notes which he had hastily jotted down, said:—Mr. Prior believes that design cannot be taught. Doubtless that is true, but you can learn a good deal about design. Mr. Prior's theory is that it should grow spontaneously, but few things do that. Wild flowers that are cultivated produce more glorious effects, and wild fruit trees become more fruitful by being pruned. I think we may consider that the young student represents, more or less, the young crab apple tree on to which we proceed to graft some of the knowledge of the gnarled oak: and the vigour of the crab-apple will surprise everybody.

The object of this class is to assist the students in the study of design, and perhaps that will meet Mr. Prior's difficulty. I think so much of the present tendency is to cram for everlasting examinations. Students would do themselves much more justice if they did not think of qualifying for some examination by some particular month. Learn all things thoroughly—after all, you are preparing yourself for a future career, not for an examination.

Proportion, I think, is one of the principal



things in design. If you get this correct—not necessarily according to any particular rules—then you can proceed to the detail; and that should not be mass of crudeness, but sparing and refined, for one of the great difficulties is to know what to leave out.

If you are sketching, try to do without your india-rubber—your sketch will be all the cleaner and better; but, on the other hand, in designing it is invaluable—in fact, I don't know what we should do without it. As regards measured drawings, I think the student would do well to confine himself to measuring every building that he admires, not simply for the sake of making a pretty drawing, but to learn its secrets and apply them to his own work.

Good new work will teach you very nearly as much as old work. If you study only the old you will have all the difficulties of to-day to work out for yourself, whereas by studying modern work you will find some of these difficulties already solved. As regards materials, it is a great pity that architects should so jump from one material to another, for in this way a design is spoiled which might have been satisfactory if carried on in a proper manner. If you have to design a brick and stone building you must limit yourself to some treatment which will not produce a lot of irritating lines.

This class of design has one particular use—there is a certain amount of beastliness in all students, and it is a good thing to work it off on the class of design, where, so to speak, they throw off the rash; and, if Mr. Hare will forgive me, I think that is another use for competitions. Judging by some I have seen I think it is well for themselves that the gentlemen should have had that bad attack.

Don't study old work in small fragments—when making a study of a door, for example, see that you examine the inside as well as the outside. Take in things as a whole, and if you cannot measure a building sketch it, but put dimensions on your sketch and you will find them invaluable. A friend of mine says he always designs to $\frac{1}{8}$in. scale. That is a fatal practice. Do not adopt it, but keep your ideas larger and broader.

Mr. Dawber had spoken of originality. It may be very original, but you do not want any of the "Art Nouveau." Digest and study what has been done before you on recognized lines, and follow the principles there exhibited. The study of works in progress is also most valuable to the student. Get out of your $\frac{1}{8}$in.-scale offices and on to the building, and then learn how the work is carried out.

The chairman thought, of all that had been said, quite the most important was that relating to simplicity. The greatest difficulty a young man had was to keep his work simple. If they studied some of the old buildings and put them down on paper, it was astonishing how simple they looked, and in this connection he cited the garden front of St. John's College, Cambridge, and Trinity College Library, Cambridge.

Mr. H. H. Statham also spoke, and the vote of thanks having been passed the meeting terminated.

The subject set for the advanced class of design is "A Market Hall for a Small Village or Market Town"; and for the elementary class, "A Stone Summer-House."

A new Workhouse and Infirmary at Southmead has been erected for the Barton Regis Board of Guardians. The site occupies 13$\frac{1}{2}$ acres and the outlay on site and buildings has been £33,000. The joint architects were Messrs. W. H. Thorp and A. P. J. Cotterell. The contractors for the boundary wall were Messrs. W. & J. Bennett; for the main buildings, roads and paths, Messrs. Forse & Son; and for the drainage, Mr. Marshall Lovell.

WHAT UNDERLIES VENICE.

Some Observations by a Geologist.

A "D.Sc. in Geology" writes to the "Morning Post" in reference to "The Cracks of Venice" (see p. 143 of our last issue). The following are some extracts from his letter:—

So far as I have read no one seems to have grasped thoroughly the geological factors of the problem which is now forced on the attention of engineers and architects. Some years since a series of papers by Professor Sacco, of the University of Turin, threw great light on the geological structure of the Po Valley. . . . . Professor Sacco's papers show that since early tertiary time . . . . the valley as a whole has subsided . . . .

As the result, those portions which lie on or near the east and west median line (as Venice does) are situated on some hundreds of feet of alluvial deposits, partly littoral, partly terrestrial, partly riverine. These have been proved in borings for water to a depth of nearly 600ft.; and terrestrial deposits in the form of massive peat-beds have been proved to a depth of 400ft. Here, then, is an important factor of the problem not to be overlooked by those who are in any way held responsible for the safety of the charming lagoon city and its historic monuments. Any engineer with some geological knowledge, who will refer to Fig. 23 of the first volume of the late Sir Joseph Prestwich's "Geology" (p. 85), will, I think, at once grasp the importance of it, and will be inclined to attribute the increased sinkage of the Venetian area of late years to the excessive removal of water from the underlying strata through the numerous deep wells which engineers have sunk, though, of course, other and more general causes have continued to operate in their degree. Earthquakes in the Alps to the north and south indicate certainly that the orogenic movements, to which I have referred, have not yet entirely ceased, but it may be doubted whether they have had any direct effect on the buildings of Venice.

We are told that the foundations of the Campanile were laid on piles driven into solid clay; but we are not told what underlies this clay, though that could be approximately predicated by any geologist capable of interpreting the data furnished by the many well-sections available. Nor are we told what the thickness of that clay may be; whether, *e.g.*, it is comparable with that of the London clay, which supports the great buildings of our Metropolis. Probably far from it. To put it another way, we have no data yet published, so far as I have read, to assure us that more yielding strata below have not undergone compression with the excessive removal of water from them of late years. Such a condition of things would, as a matter of course, lead to a maximum of depression, *cæteris paribus*, where there was the greatest superimposed weight, as in the case of the Campanile with its load of over 11 tons to the sq. ft.

Ruskin in one of his pleasant day-dreams has told us how his imagination led him to see in the present conformation of the floor of the great church of St. Mark the imitation by the architect of the waves of the Adriatic; but, to my mind, when I walked over it more than twenty years ago it suggested the bulging-up of the floor, after the fashion of well-known "creeps" in the disused galleries of old coal mines, by the action of the force due to great superincumbent weight, as that is transmitted through a yielding medium in the direction of least resistance. And I asked myself the question whether the vast weight of the Campanile was not mainly responsible for it, and whether the glorious tower itself must not some day come down or topple over.

LORD ROSEBERY ON THE PASSING OF LONDON.

IN the course of his address before the annual meeting of the London Topographical Society, held at Burlington House on Wednesday last, Lord Rosebery said:—

London is changing before our eyes. It has been changing during the last quarter of a century with inconceivable rapidity, but that rapidity has been almost duplicated and triplicated since the advent of the London County Council. What ancient streets it is going to cut through in that great new avenue for which it cannot find a name; what are to be the demolitions entailed by that anonymous crescent which all the sagacity of our municipal legislators has failed to christen. I do not dare to reckon; but I do not doubt that among my three colleagues in the chairmanship of the London County Council there must be a guilty feeling that at this moment the march of utility is going to stamp out some venerable dwellings, some ancient associations, which dwellers in London would gladly have spared if that were possible.

But as these destructions are inevitable, and must go on with the development of London, surely the least we can do is to preserve for our descendants the exact picture of what was and what has ceased to exist, both in the shape of maps of streets that were and also of representations of ancient and interesting buildings which have been destroyed.

I do not profess to be an expert like Mr. Wheatley or Mr. Gomme, but I never examine a print of an old house, such as Bedford House, in Bloomsbury Square, which has so many political associations, or any sketch of the old Palace at Whitehall, which has almost entirely disappeared—the ground plan of which the Society has produced—I never come across any trivial prints of that kind without feeling a desire that they should be preserved, and so give this Victorian and Edwardian London which we inhabit some flavour or aroma of the historical London of the past, without some knowledge of which, after all, so much of our political history is unintelligible.

If we are to do this, as I think it ought to be done, and as it is not in the least likely that any public body, borough council, or other will spend the rates in doing so, it is necessary that some small nucleus should be formed of people who are earnest in this matter, and who wish to preserve for the instruction of future generations some picture of the fast vanishing London as it is. That is the function which we present to ourselves in the first place. But we also have in view the reproduction of rare maps, of some of which, as Mr. Gomme has told you, only one or two copies exist; and therefore, in the interests of their preservation, it is most desirable that copies should be made by some association or other. Even if no member of our Society wishes to preserve in his house copies of these maps, yet, in the interests of the general public, it is most desirable that they should be multiplied, so that in case of accident or fire the maps may not altogether disappear.

The following resolution was passed at the meeting: "That this Society strongly urges upon the London County Council to systematically preserve objects and places of historic interest to Londoners under the powers conferred by the Acts of 1899 and 1900, and in particular expresses the hope that the new street from Holborn to the Strand may not be proceeded with until efficient steps are taken to preserve relics and objects of interest and to put on record the particulars of their locality."

CONWAY SUSPENSION BRIDGE.

PROPOSALS BY THE CORPORATION.

THE Conway Corporation recently held a private meeting to discuss what should be done in regard to the Suspension Bridge built by Telford over the river. In 1878 the Government Office of Works offered to sell the bridge, and an effort was made to induce the county authorities of Denbighshire and Carnarvonshire to purchase it. At that time the tolls only yielded £480 per annum, and the bridge was debited in the books of the department with a capital of £450,000. The counties regarded the concern as a doubtful speculation, and refused to have anything to do with it, though it was clearly their duty to acquire it and throw it open to the public as a county bridge on the main road along the coast. The Corporation of Conway offered to participate in the purchase, and the Llandudno Commissioners were asked to join, but they, too, were shy. So Conway made the plunge alone.

The huge capital expended on the work by the Government was due to the great cost of the embankment. A vast quantity of stone was tipped to form this approach to the bridge, and so unstable was the foundation that the embankment sank several times, and it actually cost more than the bridge. On the southern slope of it the London and North-Western Railway Company based the embankment, carrying their line up to the tubular bridge, and paid to the Government £260 per annum for the right to do so. The Office of Works agreed to sell the bridge and the embankment to the Corporation of Conway for £10,000, and the railway company agreed to purchase the right to lay their line on the embankment slope for £6,500, that figure being arrived at on the basis of thirty years' purchase at 4 per cent. An Act of Parliament to wipe out the remaining debit on the books of the Board of Works had to be passed, and another to convey the bridge and embankment to the Conway Corporation as trustees on behalf of the public. These measures cost £1,500, which Conway had to pay. Then something like £3,000 was expended by the Council in putting a new floor on the bridge. This brought the total sum to be provided by the Council up to £8,000, for which sum the bridge was mortgaged to provide the money.

Since that date, owing to the growth of the seaside resorts of Llandudno and Colwyn Bay and other parts of the coast, the revenue from the tolls has quadrupled, and the Corporation have paid off the mortgage and have raised £7,000 towards the capital sum of £10,000 which the Act says shall be accumulated out of the revenue after paying all expenses for maintenance. It is stipulated that when that capital sum is completed the bridge shall be thrown open to the public toll-free, the future maintenance to be paid out of the income from the capital fund. The Corporation have now, quite suddenly, realised that this capital fund is insufficient to provide for the maintenance, though it might have been when the Act was passed owing to the greater yield of invested money at that time. They therefore desire it to be increased to £20,000, and they are going to the Local Government Board for a provisional order to make that charge. They also intend to strengthen the bridge by means of additional cables, &c., at a cost of £6,000 or £7,000, as described on p. 22 of the BUILDERS' JOURNAL for August 27th.

At present extraordinary traffic is not allowed across the structure, so that a heavy road motor or other unusually weighty vehicle must go round by Talycafn or Llanrwst to get over the Conway. Thus the Corporation have to raise £13,000 to complete the increased capital account and, say, £7,000 for the strengthening works, making a total of £20,000. The present lessor pays something like £1,700 per annum for the tolls he collects; and assuming that the maintenance costs £300, and that the Council continues to appropriate to itself the sum of £300, which it has recently resolved upon to meet the cost of management, this leaves a nett income of £1,100 per annum. Should this be realised the users of the bridge will have to continue to pay the tolls for eighteen more years. It may, however, be that before that period has passed the county councils of Carnarvonshire and Denbighshire will realise that it is their duty to take over and maintain the structure as a county bridge.

LONDON'S COUNTY HALL.

£900,000 FOR THE ADELPHI SITE.

AT last week's meeting of the London County Council Mr. J. S. Fletcher brought up the report of the special committee as to the Adelphi Terrace site for a new county hall. He said that the Council had been considering the question of a permanent home ever since its creation in 1888. They had considered as sites Christ's Hospital in Newgate Street, Millbank Prison and the Foundling Hospital. Later the site now occupied by the Hotel Cecil was offered for £400,000, but that and other sites were either rejected by the Council or their Bills were thrown out by Parliament. When, two or three years ago, it was resolved to make the fine street to connect Holborn with the Strand, another favourable opportunity arose for reserving a site for a county hall. Unfortunately, to facilitate the passing of their scheme through Parliament the Council agreed to reinstate the Gaiety Theatre and two other buildings within the crescent area, and had represented that though the improvement would cost about £4,500,000 there would be recoupment of about £4,000,000. That recoupment would have been seriously reduced if the county hall had been placed on the most costly part of the improvement area. The Aquarium site was rejected as wanting in dignity, and another site of four acres, facing the river opposite Lambeth Palace, was abandoned as not sufficiently central, while both sites were too near the Houses of Parliament. The committee now reported strongly in favour of building on the Adelphi Terrace site, which had a central but quiet position in London. The cost of that site (£900,000) was very moderate as compared with other sites, and such a favourable opportunity was not likely to recur for many years. A discussion followed, but on a show of hands the reception of the report was carried by 60 votes to 16.

Mr. Fletcher moved: "That the Council do apply to Parliament for power to acquire compulsorily for the purposes of new offices the properties bounded on the north by William Street, the Tivoli Music Hall and Adam Street, on the south by the Embankment Gardens, on the east by the Hotel Cecil, and on the west by York Buildings."

Dr. Cooper then moved as an amendment: "That in view of the heavy rates now being levied in all the eastern and southern metropolitan boroughs, it is inadvisable to apply to Parliament for sanction to raise the large sums of money which the adoption of this scheme must necessitate until Parliament has given to London some new source or sources of income."

Further discussion took place, but on a division the amendment was rejected by 78 votes to 29.

Colonel Rotton moved the adjournment of the debate, which was agreed to.

The report as to the naming of the new main street from Holborn to the Strand and the new crescent street was withdrawn, and the question will now be referred to the General Purposes Committee. The revived proposal for a tramway over Westminster Bridge and along the Embankment stood over.

BRITISH SCHOOL AT ATHENS.

THE annual meeting of subscribers to the British School at Athens was held last week at Burlington House, W. The report read by the hon. secretary (Mr. William Loring) stated that the work of the School had been carried on successfully under the directorship of Mr. Bosanquet during the past season. Among the students of the School were Mr. C. Heaton Comyn, A.R.I.B.A., and Mr. A. E. Henderson, architect. Mr. Comyn was appointed to an "architectural studentship" in connection with the excavations in Crete. He occupied himself in the neighbourhood of Athens by making a complete set of drawings of the beautiful little Byzantine church at Daou, at the south end of Mount Pentelicus, to which Mr. Bosanquet had invited his attention. Mr. Henderson was readmitted as a student for the third time, for the special purpose of the Cyzicus survey. Of the preceding year's students Mr. J. H. Marshall had been appointed Director-General of the Archæological Survey of India; Mr. Wells had settled down to the practice of his profession as an architect; and Mr. Penoyre had undertaken a course of archæological "extension" lectures. Messrs. Fyfe & Mackenzie, formerly students of the School, had served once more as Mr. Evans's assistants at Knossos.

Passing to the work of the Director, the Committee had to record the preliminary excavation of the early site at Palaeókastro, on the eastern coast of Crete. The excavation was carried out under the supervision of Mr. Bosanquet, with the assistance of Mr. Comyn. The site appeared to have been almost untouched from Mycenæan times until the middle of the last century, and contained abundant remains of houses, large and small, of the Mycenæan period, together with numerous tombs and many hundred vases, both of that and of the earlier epoch. The Director had been busy sorting and preparing for publication the last results of the important excavations at Phylakopi in Melos. The finest specimens of pottery from Phylakopi now adorned the Mycenæ room in the Central Museum at Athens; and a number of duplicates had been brought home to England, by the courteous permission of the Greek Government, and would be divided between the Ashmolean, Fitzwilliam and (probably) the British Museum.

The Committee regretted to have to report a deficit of £164 on the year's working. It was earnestly to be hoped that this deficiency might be speedily supplied by fresh subscriptions.

The chairman (Dr. Thomas Hodgkin) congratulated the meeting on the success of the School. In past times the zeal of archæologists had been somewhat intermittent. Now it was to be hoped that it would be continuous, and that we should not fall behind other nations; and that no Chancellor of the Exchequer would ever lay his lands on the little grant which had been made by the Government. The details known a generation ago of early Greek history were few and uninteresting; Carlyle had bitterly complained of Thirlwall's first volume as nothing but Pelageans and Lalages and Chaireans and Melageans and Dolopes — Dolopes — Dolopes! Now happily that was all changed, and the dry bones was made to live; and it might be that the Pelasgians themselves would be brought into clear historic lines.

Views and Reviews.

Shoring and Underpinning.

The third edition of this standard work upon the subject of shoring and underpinning has just been published. This edition has been revised by Mr. Frederick R. Farrow, F.R.I.B.A., but he has found little to alter. The book deals most thoroughly with the subject, and one of its best features is, that abstruse theoretical discussion of the mechanical principles involved is relegated to a separate chapter and is not made necessary to the intelligent understanding of the general principles. In ordinary practical work it is more usual to proceed by rule-of-thumb methods, which are quite efficient enough for the somewhat elementary works of shoring. Of course on occasion it is necessary to go into things more thoroughly, but this is for the expert. One of the most useful chapters in the book is devoted to the shoring and underpinning of mediæval buildings. This is, perhaps, the most ticklish work there is of the kind, and the avoidance of any unnecessary damage is most important, for damage to an old structure is irreparable, however careful may be the restoration.

"A Treatise on Shoring and Underpinning, and generally dealing with ruinous and dangerous structures," by Cecil Haden Stock. Third edition, revised by Frederic Richard Farrow, F.R.I.B.A. London: B. T. Batsford, 94, High Holborn, W.C. Price 4s. 6d.

Glasgow and West of Scotland Technical College.—The annual report for the past year contains nothing new of importance, but the standard of work has been well maintained. Towards the new buildings fund £176,173 has been collected, and contracts amounting to about £130,000 have been entered into.

THE MANCHESTER TECHNICAL SCHOOL.

THE Municipal School of Technology, Manchester, was opened by Mr. Arthur Balfour last Wednesday. The legatees of the late Sir Joseph Whitworth gave a sum of £5,000 and a plot of land 6,400 sq. yds. in extent, situate in Sackville Street, for the purpose of erecting the school, to which the Corporation added a further area of 900 sq. yds. In 1895 the building of the new school was begun, and from that time to the present the building and the equipment of the new school have been in progress. In addition, the Committee are erecting on a plot of land 1,248 sq. yds. in area, close to the main building, a commodious dyeing, bleaching, printing and finishing house for textile goods, and for the manufacture, dyeing and finishing of paper. The new building is of imposing proportions, and is one of the largest buildings of the city. It is oblong in plan, and comprises six storeys, the corridors on each floor being lit from two spacious areas, whilst the classrooms and laboratories are all lit from the outside. The chief and practically the only public entrance is in Sackville Stree, leading to a spacious entrance hall 4,000 sq. ft. in area and thence to the main staircase, there being two subsidiary staircases, each containing a lift, giving ready access to the rooms on each floor. Over the entrance hall is an examination and public lecture hall of the same area, and above it a commodious chemical laboratory. The basement is one great workshop and laboratory for spinning and weaving, and mechanical, electrical, steam and hydraulic engineering; whilst throughout the building extensive laboratories and workshops are provided for chemical, physical, metallurgical and sanitary work and investigations. A extensive library is provided. The building erected after the designs of Messrs. Spalding & Cross, of London, by Messrs. Robert Neil & Sons, of Manchester, is constructed terra-cotta and Accrington bricks in th French Renaissance style. The school i designed to accommodate the mechanical electrical and sanitary engineering industries the chemical and textile industries: th building and printing trades; and many minor trades and industries. The value o the sites, structures and equipment of th two buildings will be nearly £300,000. The syllabus of the school is published by Mr. John Heywood, of Manchester, price 6d. and forms a large volume. Lectures o architecture and building are given by Mr. J Wilson and Mr. A. E. Corbett, A.R.I.B.A The illustration on this page was drawn by Mr. Hedley Fitton, and is published in th syllabus.



THE NEW MUNICIPAL SCHOOL OF TECHNOLOGY AT MANCHESTER. SPALDING AND CROSS, ARCHITECTS.

Kirklington Church, about nine miles from Carlisle, has been reopened after undergoing extensive interior repairs and decoration at a cost of £1,150. The work included the re-seating of the church, chancel and choir, the putting up of a fresh ceiling in oak, the introduction of a new pulpit and other necessary fittings, and the re-painting and decorating of the whole of the walls.

A new Town Hall at Marlborough has been erected to replace the old one. It is in the Late Renaissance style and is of red bricks, with Ham Hill dressings and cream-tinted rough-cast for the upper storey. The roof is a high-pitched one, with broad eaves, and covered with dark red tiles. Mr. B. Hillier, of Marlborough, was the contractor, and Mr. C. E. Ponting the architect. The amount of the contract was £7,500, but this has been exceeded.

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ARCHITECTURAL ASSOCIATION.

HOMER AND ARCHITECTURE.

By T. R. SPENCE.

A MEETING of the Architectural Association was held on Friday evening last at No. 9, Conduit Street, W., Mr. Henry T. Hare, F.R.I.B.A., presiding. The adoption of the annual report and balance-sheet was proposed by Mr. C. H. Brodie and seconded by Mr. G. F. Hooper. This was carried unanimously. The following were then elected members:—Messrs. Cecil G. Hare, Herbert C. Ingram, W. Paul, A. S. W. Mackay, Hugh J. Scott, A. Tudor Groves, R. M. Butler, Andrew N. Prentice, Stephen J. Adams, W. J. Feare, Solomon Ford, T. W. Fullerton, R. C. Foster, H. H. Whittington, Noel A. F. Haslewood, E. R. Nixey, Richard Tasker, Maurice E. Webb, E. J. Whitley, F. E. Whiting, A. Clavel Withers, J. W. Waite, George Vey, W. N. Couldrey, B. Chaikin, A. A. Hands, W. T. Temple, Alan Binning, Hamilton Reaney, A. M. Millwood, P. O. Dunk, C. Gascoyne, S. W. Hill, J. R. Osborn, M. R. Martin, P. H. Topham, E. F. Ferry, A. E. Mumby, A. Horsnall, G. F. Royds, T. C. Pope, C. M. Harris, T. S. Atlee, W. G. de M. Wilkinson, J. H. Markham, Louis Cohen, C. A. S. Vardy, W. Whymper, W. K. McDermott, G. D. Clunies Ross, G. G. Sigismund and L. Morgan.

Mr. T. R. Spence then read his paper on "Homer and Architecture and the Crafts," of which the following is a summary:—

The aim of this paper is not to enter into vexed questions of archæology or the latest discoveries relating to archaic art and their relation to the life of Homer. It is more in the nature of a fairy journey with him, noting the delicate and subtle suggestions on architecture and the crafts which interlace the expression of his joy in battle, and the lovely sea and land in which is set the story of his characters. He was the seer who "dipped into the future and saw the wonder that would be," for, we may take it, the art he described was more in the sense of a vision of its fruition. He gave in literature what Phidias gave in marble and metals. May not archaic work be the strenuous childhood of effort to materialise the conception of the seer? and only when Phidias came did his ideas reach their permanent ripeness and fulfilment. How well he has suggested in the Odyssey a broad conception of architecture in speaking of shadowy halls, echoing galleries and fragrant chambers, and the value of the bath. His genius seems to have indicated most of the things in architecture and its accessories which are acceptable to those who find their joy in this great art. Any discussion on Homer and architecture really embraces

All that is best in Greek Art.

So that the subject is a vast one. It is like accepting a brief for the scheduling of all that adds to the beauty and refinement of life in architecture. Of course, I mean one phase of architecture only, and my reverence is equally great for many others of widely distinct periods of expression in form and treatment. The architecture that Homer gives largely appertains to stately dwellings; it is the hope of all students that commissions for such will reach them sooner or later. Recently architecture has suffered somewhat from persistent efforts to graft on to that architecture, which should be spacious, large, and dignified, such forms, shapes and dimensions as appertain to the cottage or kitchen furniture.

Homer's appreciation for the decorative details of marble, colour, metals, &c., associated with architecture, seems to run on true schemes of harmony. Their gamut is not large (probably the better for that), and consists of gold, silver, ivory and bronze, so that you feel he was familiar with the refinements of life and free from the tyranny of the commonplace. His heroes, during the delight of battle, were decked with magnificent beaten armour, ornamented in *repoussé* of gold and silver; some descriptions of such are quoted later, and we only need to refer to vase paintings, &c., to see how good was the general scheme of the armour of the best Greek period. In the "Iliad" we find the first reference to architecture in a suggestive passage on Priam's palace, "adorned with polished colonnades—and in it were fifty chambers of polished stone, builded hard by one another, wherein Priam's sons slept . . and for his daughters over against them, on the other side within the courtyard, were twelve roofed chambers of polished stone, builded hard by one another."

Hephaistos plays a great part in the arts, he being the great craftsman in metal in the house of the gods. His own dwelling is described as being imperishable, star-like, a house of bronze worked by the crooked god himself, where he forged "tripods, twenty in all, to stand round his hall, and beneath the base of each he had set golden wheels, that of their own motion they might enter the assembly of the gods and again return unto his house, a marvel to look upon: this much were they finished that not yet were the ears of cunning work set thereon—these he was making ready and welding chains," &c.

The description of the shield of Achilles is carefully detailed at some length, and gives, with a keen insight, all that goes to make magnificent subjects illustrating such incidents as embrace all those elements which are decorative.

In the Odyssey

we learn more of the arts that appertain to home life and its hospitality; the provision for these things is mainly the architects' function, so that we may not pass them over. Bathing and anointing with olive oil and sweet herbs ended all fatiguing journeys and preceded all feasts. Much was made of guests arriving from either peaceful or warlike expeditions. They were led into the hall. "They sat down orderly on seats and high chairs, and when they were come the old man mixed well for them a bowl of sweet wine, which now in the eleventh year from the vintage the housewife opened."

When Telemachus was welcomed at the house of Menelaus by his wife we find the following: "Helen bade her handmaids set out bedsteads beneath the gallery, and fling on them fair purple blankets and spread coverlets, and thereon lay thick mantles to be a clothing over all. So they went from the hall with torch and spread the beds, and the henchmen led forth the guests. Thus they slept there on the outer gallery of the house—the hero, Telemachus, and the splendid son of Nestor.

Again, when Telemachus and his men had "tilted his chariot against the shining faces of the gateway, and led them into the hall divine, and they beheld and marvelled as they gazed through the palace, for there was a gleam as it were of sun or moon through the lofty palace of renowned Menelaus. But after they had gazed their fill, they went to the polished baths and bathed them. Now when they had bathed and anointed them with olive oil, and cast about thick cloaks, they sat on chairs by Menelaus, and a handmaid bore water for the hands in a goodly golden ewer and poured it forth over a silver basin to wash withal, and to their side she drew a polished table and laid upon the board many dainties."

Throughout the whole of Homer's writing there is evidence of a close acquaintance with the treasures of art of many races, and the examples of these may have fired his imagination. Many quotations might be given from the "Odyssey," but probably the following will suffice as bearing on architecture:—

"Meanwhile, Odysseus went to the famous palace of Alcinous, and his heart was full of many thoughts as he stood there, or ever he had reached the threshold of bronze, for there was a gleam, as it were, of sun or moon through the high-roofed hall of great-hearted Alcinous. Brazen were the walls which ran this way and that from the threshold to the inmost chamber, and round them was a frieze of blue, and golden were the doors that closed in the good house. Silver were the doorposts that were set on the brazen threshold, and silver the lintel thereupon, and the hook of the door was gold. And on either side stood golden hounds and silver . . . . and within were seats arrayed against the wall this way and that from the threshold even to the inmost chamber, and thereon was spread light coverings thinly woven, the handiwork of women . . . . Yea, and there were youths fashioned in gold, standing on firm set bases, with flaming torches in their hands, giving light through the night to the feasters in the palace. And he had fifty handmaids in the house, and some grind the yellow corn on the millstone, and others weave webs and turn the yarn as they sit restless as the leaves of the tall poplar trees, and the soft oil drops off that linen, so closely is it woven . . . And without the court hard by the door is a great garden of four plough gates, and a hedge runs round on either side, and here grow tall trees blossoming, pear trees and pomegranates and apple trees with bright fruit, and sweet figs and olives in their bloom. The fruit of these trees never perisheth or faileth, winter nor summer, enduring all through the year evermore; the west wind blowing brings some fruits to birth and ripens others. Pear upon pear waxes old, and apple on apple, yea, and cluster ripens on cluster of the grape, and fig upon fig. There, too, hath he a fruitful vineyard planted, whereof the one part is being dried by the heat, a sunny plot on level ground, while other grapes are gathering, and yet others they are treading in the wine-press. In the foremost row are unripe grapes that cast the blossom, and others there be that grow black to vintaging. There, too, skirting the furthest line, are all manner of garden-beds planted trimly, that are perpetually fresh, and therein are two fountains of water, whereof one scatters his streams all about the garden, and the other runs over against it beneath the threshold of the courtyard and issues by the lofty house, and thence did the townsfolk draw water."

It seems to me that

The Architect Ictinus and Phidias

have petrified the dreams or prophecies of Homer, so that we can in a measure believe they were one in architectural design, the one finding his expression in words and the other in such material elements which embody architecture and give it a local habitation and a name.

It should be our function to gather the threads together of what makes Greek art so great, and I can only indicate some things which occur to me as evidence. From what I have seen in Greece the perfection of the workmanship of every detail in the architectural remains is very patent—from the perfect arises of fillets and flutes of the immense Doric columns, the soft and accurate curves of the volutes in the Ionic caps, the daintiness, finish and shape of the egg-and-tongue and other details of acanthus leafage on horizontal mouldings: the fine sinuous uniting curves, and relief of the acanthus when used in larger and detached forms; the true and delicate contours of their mouldings and the juxtaposition of larger flat curves with smaller incised and sharply cut members; the sense of decoration they get in soft horizontal lines of shadow being picked up and

accentuated by the sharp incisive darks below; the evidence of

Reserve in the Disposition of Ornament.

If their ornament was full of nice detail so was it laid on a quiet field, and thus lost none of its value. This vignetting of the sculptor's jewels is a most commendable feature in architecture.

Notice the satisfactory way in which their bas-relief panels filled up the space they were to adorn—the subject filled the space fully and with dignity, the heads not slipping far below the top moulding. What could be better in this respect than the frieze of the Parthenon. In their groups of ornament note, notwithstanding much small work in parts, running through are always larger curving, uniting forms so that the general effect is in no way belittled, but delicacy and breadth of expression is maintained.

Our incomparable British Museum is a treasure house of Greek art, and there you may note how satisfactorily many things relating to architecture are accomplished. See how the groups of sculpture in the Parthenon pediment fill the triangular space and, as you may know, this has not always been done in modern buildings with success. The high reliefs of the figures in the metopes show a fine expressive crispness suitable to their position. The frieze, which of course, comes within the shadow, has a treatment of another kind, comparatively low in relief, yet giving a fine sense of breadth and refinement. At the first glance you think that

The Great Purple Shadows

on Greek architecture are lightless, but on examination, such is the quality of the irridescent light, innumerable soft reflections play on these reliefs and give them more definition and harmony. Well, in such juxtapositions, where two ways of treatment are involved, the result is an added value to each form of detail. This also applies to mouldings and other forms of decoration. The architects of the Italian Renaissance have treated the ornamentation and profiles of mouldings with a charming variety and liberty. Mino de Feisole is about the best in this way. Yet do not start from Mino de Feisole in your efforts to add further interest to such detail; rather add your invention to the purer Greek forms.

It may be contended that there is not much to be learned of architecture proper from Homer, yet I venture to think that what he says of it is of significance and interest to those practising this art, for by that means they will be led to take a deep interest in the efforts of later Greek architects and artists to illustrate or build up into permanent form his imagery. The examination of their achievements will result in an education.

Please do not think that your task is to reproduce only from the cells of memory the best details of the Greek or any other period; but think how much can be gathered from their sense of proportion, the value of plain spaces, and the vignetting and placing of such adornments as their sculptors, painters and metal craftsmen could supply.

Costume of the Greeks.

To me the clothing of the Greeks ranks, as costume, very high, if not the highest, as a motif for the architectural sculptor. It does not seem an invention of pushing tailors. It is of the simplest construction, and follows and accentuates all the sinuous motions of the figure. Its lines are endless in variety, and can be governed by and made subservient to the sculptor's aims. The best mediæval costumes bear a close relationship to those of the Greek. Then, again, the symbols of their religion as seen in the Parthenon frieze are of refined and decorative forms.

We gather from Homer a fine sense of site for his architecture, as he mentions in his descriptions of the House of Alcinous as having a fair prospect. Then, again, a later writer speaks of Athens as the "city of the violet crown," the crown being the Parthenon. I can speak from experience of the site of the House of Agamemnon on the lower spurs of the mountains of Argos. Behind are the higher peaks, and far away below stretch the plains of Argolis—as Homer phrases it, the pasture land of horses—and beyond the boundaries of this plain lies the blue shimmering bay of Nauplia. On speaking of

Greek Landscape,

with its long, horizontal lines of blue seas and grey-green plains, from the boundaries of which rise the broad and dignified mountain forms, all bathed and united in the iridescent air of that divine land, makes it an unequalled source for instilling into an architect such a sense of colour for decorative purposes as cannot be obtained from text-books of coloured ornament.

This reference to landscape may seem a wandering away from architecture, but no source of inspiration is unworthy. Most architects have a deep interest in interior colour, but many cherish as their only idols schemes of grey-greens and reds, avoiding that which is sumptuous in colour. When you get over the wall of the Swiss Alps revelations come upon you that the diffused purple has harmonies equally beautiful. In Greece all the greens, blues and greys, &c., seem to be steeped in a bath of purple. This veil of purple iridescent atmosphere is the magician which assimulates and brings all local colour into decorative completeness. Unfortunately we cannot bring the quality of the sunlight here, but, still, remembrance of these things has an educational value.

My remarks may have been of a wandering nature, but apart from the science and ever-changing needs of architecture it is a great and beautiful art; and to give it that crown of art or beauty, air of distinction or style, some little deviation in the side paths of the softer emotions cannot be a fruitless journey. Whatever may be the perfection of the anatomy of the parts of your architectural work, it can never suffer from wise and restraining disposition of its bejewelling. Frankly, a great architect must possess many gifts. He must have that which is generally known by the words common sense; it is rather a clumsy phrase, which means so much, for it really embraces a subtle practical wisdom, a sense of winnowing the wheat from the chaff, and, as far as architecture is concerned, a thinker in building material rather than pencil. I venture to say he must have added to these qualities the instincts of a poet to finally set that seal of completeness on his conception which makes a work of art.

Discussion.

Mr. John Slater, B.A., in proposing a vote of thanks to the reader of the paper, said that from the excavations made by Schliemann we knew the plan of a Greek house, but not much about the interior. Schliemann had found that city after city had been built upon the other on the same site, and he thought much the same had occurred in Homer's poems. Bards had handed them on by word of mouth, and in this way accretions would come to the original poems. He did not consider the descriptions of architecture should be taken literally. He agreed with Mr. Spence, as to the advantage which the study of Greek architecture was to the student.

Mr. R. Phené Spiers seconded the vote. He thought Mr. Spence had taken the right line in stating that building construction, specifications, &c., were not everything, but that there were higher ideals. He was of opinion, with Mr. Spence, that Homer's ideals in art was to be seen realized in the later work of Phideas and his contemporaries, for the architecture of Homer's day must have been very barbaric. With regard to the word translated "amber" in one of the descriptions from Homer he thought this was not amber, but a metal, probably an alloy of silver and gold.

Mr. J. D. Crace and Mr. Hare also spoke, and Mr. Spence briefly replied. The meeting then terminated.

CONCRETE AT DUSSELDORF.

"'BETON,'" says "Engineering," "means on the Continent what is usually called concrete in this country. But the term has a very different ring over there. Here the word suggests foundations and dams. In Germany, as in France, whole works, bridges, hotels, churches and monuments have been built in cement and beton; and the visitor to the Düsseldorf Exhibition would not suspect that the beautiful columns, their capitals and reliefs, the statuary, the bridge and flight of stairs, are really all worked in beton, however much they resemble sandstone, marble and granite. The foundations of the columns in the Exhibition, which have a total height of 115ft., go down to 18¼ft. below the surface, and consists of concrete blocks 42ft. 7in. square, 55in. in thickness, made of 1 part cement to 10 parts of gravel, and containing a grid of I-irons. The capital, 18ft. in height, is made up of rings and of four blocks, held together by iron anchors. The capital is crowned by a metal dome and by a figure of Victory. The various beton mixtures were examined at the Royal Testing Station of Charlottenberg; the 1 in 10 mixture was in test-blocks seven weeks old, crushed by loads varying from 286lb. to 330lb. per sq. in.; while the 1 in 7·5 mixture bore 315lb. The bridge, 98ft. span over the basin, is remarkable for its small rise of only 2 metres, that is, one-fourteenth of the span. The ground was by no means favourable; the foundations go down to a depth of about 17ft. Before the opening of the Exhibition the bridge was loaded with a 27-ton steam roller and a crowd of people, equivalent to a weight of 92lb. per sq. ft."

Bolton Hall, Yorkshire, was practically destroyed by fire last week. Most of the valuable pictures, furniture, &c., were saved.

At the East United Free Church, Aberdeen, a large organ recently erected, the pulpit, and a carved screen were destroyed by fire last week. The organ and screen cost over £1,500, and the church itself has been greatly damaged.

Richmond Bridge.—The Richmond Town Council have decided by a majority of one to postpone the proposal that the council should ask the Surrey and Middlesex County Councils to build a new bridge over the Thames at Richmond, on the ground that the existing bridge was unsuitable and dangerous.

A Wesleyan Church at Churchdown, Cheltenham, is being erected near Drew's Court Farm. The plan is L-shaped and includes church and school combined, being designed for use separately or together, and having a total accommodation for about 200 persons. Plain Early English style is adopted, and the materials used are hammer-dressed Painswick stone with Bath-stone dressings. The roof will be covered with green slates, and a stone tower and spire will be erected over the entrance porch which gives access to the church, and also to the schoolroom or lecture-room. The floors will be of wood blocks, and the walls finished internally with sand-faced cement dados and oak mouldings, with the upper portion finished for tinting. The roof will have hammered-beam principals, stained dark. The seating will be of oak or pitch-pine, and the windows and screens of lead glazing. The architect is Mr. J. Fletcher Trew, M.S.A., of Gloucester, and the builder Mr. William Jones, also of Gloucester.

Enquiries Answered.

The services of a large staff of experts are at the disposal of readers who require information on architectural, constructional or legal matters. Questions should in all cases be addressed to the Editor. The querist's name and address must always be given, not necessarily for publication.

Camera-Obscura on a Building.

DOLGELLEY.—C. H. S. writes: "How should a place be constructed for a camera-obscura on the top of a building?"

All that is required is a small circular room, absolutely light-tight, with door fitting in a rebated frame felt-lined to exclude light. A circular table is fixed in the middle of the room, and painted white, while over the centre of the table is a vertical circular hole in the roof in which the revolving mirror can be inserted. Any optician or lantern manufacturer would construct the mirror with the necessary simple mechanism for its revolution, if supplied with the plan and section of the room, and would advise as to size and height of table. G. A. T. M.

Copyrighting Architectural Plans.

LEIGH.—PONS writes: "Is there such a thing as copyright in architectural plans?"

It is not possible to copyright an original architectural plan; but a lithograph that has been circulated, or a published reproduction, may be copyrighted as a "book" on payment of the fee of five shillings. If published during your lifetime the term of copyright would last for forty-two years from the publication of the plan or the period of your life and seven years from your death, whichever is the longer term. If published after the author's death, then the proprietor has copyright for forty-two years from the first publication. A "book" cannot be registered before it is published. An elevation of a building would need to be registered as a "picture." Full instructions as to both procedures can be obtained by application to the Registrar, Stationers' Hall, London, E.C. To secure copyright in Great Britain of works intended to be published in America and other foreign countries (except the Kingdoms and States represented in the Austrian Reichsrath) which have not adopted the provisions of the Berne Convention, simultaneous publication in both countries is essential, and the work should be registered at Stationers' Hall and one copy delivered to the British Museum, and four copies lodged at Stationers' Hall for the public libraries.

Fixing Shear Legs.

NEWPORT, MON.—A. S. M. & Co. write: "A question has arisen with respect to the proper method of fixing a shear legs (height 16ft.) on a tall chimney. The scaffold consisted of staging fixed inside the chimney (about 20ft. in diameter), a manhole about 6ft. square being provided in the middle. The apex of the shear legs is directly above the middle of the manhole, and the three legs of the shears rest in sockets in the staging. An accident occurred through the carelessness of the men in lifting a stone, by which the shear legs swung out of its sockets and struck a man, thus injuring him. Was sufficient precaution shown in placing the shear legs in sockets? Is it the usual trade custom in such cases to bolt the shear legs to the staging? What is the proper method of fixing such shear legs?"

The writer has never seen shear legs fixed in their sockets, although he has used them on all sorts of jobs. With ordinary care there is no tendency for a leg to come out of its socket, but it is frequently necessary to hold the footing piece containing the socket in place. In any given case everything depends upon the exact conditions as to whether the shear legs are properly fixed and used. HENRY ADAMS.

Filtering Water for Concrete.

BELVEDERE.—J. P. writes: "How can river-, rain- or well-water be filtered so that it can be used for mortar or concrete or artificial stone-making? How can water be tested to ascertain whether it contains anything injurious to its use for these purposes?"

Generally speaking, any of the waters named would be sufficiently pure for making mortar, concrete or artificial stone without any preparation. In times of flood river-water becomes turbid through mud carried down, but this soon goes to the bottom if the water be left undisturbed in a settling tank. The best test for any given sample of water is to use it in mixing cement briquettes for testing in a machine, and then to note the effect, if any, in lowering the tensile strength. The dissolved impurities may be ascertained by evaporating a given quantity of water and weighing the residue. A sand filter-bed may be used for purifying on a large scale, but it would probable be unnecessary. HENRY ADAMS.

South Africa for Architects' Assistants.

T. D. L. writes: "As an architect's assistant anxious to obtain a berth in South Africa I should be glad to have some information on the subject."

Read the article on p. 141 of our last issue.

Maximum Age for Clerk of Works.

NEWPORT, MON.—N. C. B. writes: "What is considered to be the maximum age at which a clerk of works might apply for an appointment?"

There is no limit of age for an architect's clerk of works. It is a question more of physical capacity and other things. As engagements are usually for one building or one job only, and subject to a month's notice, age is not so important as with estate clerks of works, whose engagement, being usually of a permanent character, fixes the limit at about 45 to 50 years. T. P.

Books on Architecture.

GATESHEAD-ON-TYNE.—F. H. P. writes: "What book on architecture, price about 7s. 6d., would you recommend for study and reference?"

We recommend Banister Fletcher's "History of Architecture" (B. T. Batsford, 94 High Holborn, W.C., price 21s.); but two books also to be recommended are "Classic Architecture," by T. Roger Smith and John Slater, and "Gothic Architecture," by T. Roger Smith and R. E. Poynter, published by Messrs. Sampson, Low, Marston & Co., Ltd., price 5s. each.

Books on Modelling.

ALDERLEY EDGE.—MODELLER writes: "Please name a cheap book on modelling in clay—architectural subjects principally."

We know of no cheap book. "Modelling," by E. Lanteri (Chapman & Hall, Ltd., price 15s. nett), is the best work on the subject, but there is a useful chapter on modelling from its more architectural side in Millar's "Plastering—Plain and Decorative" (B. T. Batsford, 18s. nett).

Parish Rooms at Braunton have been erected on Dean's Close, adjoining the Vicarage, and within a stone's throw of St Brannock's Church. The buildings consist of a large lecture hall, 55ft. by 25ft., with platform, seating about 300, with classrooms and offices. The stone was given by the churchwarden, the cartage done by another parishioner without charge, and the architect engaged by a third. Mr. Southcombe, of Barnstaple, was the architect, and Mr. Harry Slee, of Santon, the contractor.

Builders' Notes.

The Builders' Benevolent Institution.—An election of pensioners will be held in December at the offices, 31 and 32, Bedford Street, Strand. Applications must be received at the offices by October 27th.

The Southampton Steam Joinery Works, at Northam, were burnt down last week. Damage to the extent of £12,000 was caused, and over one hundred hands are thrown out of employment. Much valuable machinery was rendered useless.

Woolwich Municipal Buildings. — The Woolwich Borough Council at its meeting last week accepted the tender of Messrs. Johnson & Sons, of Leicester, to erect municipal buildings in Wellington Street, Woolwich, at a cost of nearly £51,000. This amount is exclusive of the cost of the site. A proposal to add a town hall to the buildings at an extra outlay of £9,000 was defeated by 21 votes to 9.

Partnership Dissolved.—The partnership heretofore subsisting between Messrs. Thomas Baker Davis and Edward Arthur Chamberlain, carrying on business as builders and house decorators at No. 48, Newcomen Street, Southwark Street, London, under the style or firm of Davis & Chamberlain, has been dissolved by mutual consent as and from July 30th. All debts due to and owing by the late firm will be received and paid by Mr. Edward Arthur Chamberlain.

Working Men and Rifle-Shooting in Winter. — Lieut.-General F. Lance, C.B., draws attention to the Society of Working Men's Rifle Clubs, of which Earl Roberts is president. To establish a rifle club fully equipped with the apparatus recommended, rifles, &c., a hall or room 40ft. or more in length is required, and a sum of £15 will more than cover the initial cost; whilst, without the apparatus, a small club could be started for £5. The profit on the sale of ammunition and a small subscription from members will cover the cost of maintenance. The committee of the Society has just published a little book showing the best means of forming and conducting a miniature rifle club, and a copy will be gladly sent free of charge to any person interested in the subject. (Offices: 17, Victoria Street, Westminster.)

The International Fire Exhibition at Earl's Court, 1903.—At the executive meeting of the British Fire Prevention Committee last week the announcement was made that the Committee's preliminary arrangements for the International Fire Exhibition had been completed and the general programme finally decided upon. An eminently influential Advisory Council, representative of the great technical and fire interests, and headed by the President of the Royal Society and presidents of the leading scientific institutions, has now been duly constituted and the various working sub-committees are in course of formation. The hearty co-operation of the Duke of Marlborough, K.G., president, and the leading members of the National Fire Brigades Union, the officials of the Private Fire-Brigades Association and St. John Ambulance Association has been assured, whilst the various Continental fire authorities have promised active assistance. The preliminary work for the Fire Congress to be held next year at the time of the exhibition has also now been started under the direction of Mr. Edwin O. Sachs, chairman of the Fire Prevention Committee. A number of most important questions will be discussed at this conference, at which the leading authorities of all countries will be represented. The exhibition will have the advantage of eminently interesting exhibits in the way of modern constructional and engineering work and the latest fire appliances, as well as historical relics, &c.

Mr. F. Towl, of Walthamstow, has been appointed building inspector and clerk of works to the Woodford District Council.

Fireproofing.—The Columbian Fireproofing Co., Ltd., of 37, King William Street, E.C., have just obtained the contract for fireproof floors and roofs for the large bakeries at Fulham for Messrs. Macfarlane, Lang & Co., of Glasgow, as well as for branch banks at Manchester and Deptford for the London City and Midland Bank, of Threadneedle Street.

Associated Portland Cement Manufacturers (1900), Ltd.—The second annual report of the directors shows that the profits do not allow a dividend on ordinary shares. The cost of coke and other materials has been high, and selling prices of cement have been forced down owing, among other things, to the great over-production on the Continent; but the directors report that the demand during the past six months has been good, and they confidently look for increased profits in the future. The rotary kiln plant at Swanscombe is working well.

An Income from Sea-sand.—Until recently builders and contractors were allowed to help themselves to sand and shingle from Yarmouth beach, but the Corporation, finding how the quantities removed steadily increased, decided to impose a nominal charge of threepence per cartload. Small as the charge is it suffices to return a revenue to the civic coffers of no less than £400 per annum, as was shown at the last meeting of the town council, when the half-yearly estimate for the new rate set down £200 as six months' income from sand and shingle taken from the beach.

A Book on Fire Prevention.—Mr. B. T. Batsford, of High Holborn, W.C., announces that a book entitled "Facts on Fire Prevention," edited by Mr. Edwin O. Sachs, and embodying results of investigations with fire-resisting materials by the Fire Prevention Committee, will be issued towards the end of this month. The book, which forms two volumes of 220 pages each, profusely illustrated from photographs and drawings, deals with floor-construction, partition-construction, ceilings, window and door protection—all subjects of considerable immediate importance, both in respect to the practice of building in London and the various proposed amendments in the Building Act and factory regulations. The volumes contain facts only, as distinct from views and criticisms, and the book is intended as a standard work of reference.

The late Mr. W. B. Wilkinson.—We regret to announce the death of Mr. W. B. Wilkinson, of Newcastle-on-Tyne, on October 13th, in his eighty-fourth year. He was the founder of the well-known firm of W. B. Wilkinson & Co., Ltd., of Newcastle-on-Tyne and London, and was the originator of the now universally known concrete pavings. The first floor ever laid in this form was a greenhouse floor in Newcastle-on-Tyne by this firm, and afterwards the business developed to an enormeus extent, their paving being laid all over the kingdom, and even as far away as Lisbon. Mr. Wilkinson took out a patent in 1854 for fireproof construction. He used wire rope and small bars embedded below the neutral axis of the concrete. In 1856 he patented a hollow tubular fireproof and sound-proof partition, and in the 'eighties an ornamental concrete paving, which he called "Specular Granitic." The deceased gentleman was a J.P. and was chairman of the Newcastle and Gateshead Gas Co., director of the Newcastle and Gateshead Water Co. and the North Shields Gas Co., and was connected with many of the largest businesses of the North of England, while his connection with philanthropic institutions of the district was equally extensive.

Bricks and Mortar.

Aphorism for the Week.

It has been, in all ages, the aim of good architecture not only to add beauty to utility, but, so far as possible, to make it grow out of, and result from, the uses and construction of the various parts of the building.—Sir Gilbert Scott.

Our Plates. The four houses and shops in High Street, Oxford, recently completed, are built of brick faced with fine rough-cast and with dressings and chimney stacks of Milton stone. The roof is covered with Naunton stone slates in diminishing courses. The bay windows facing the street are of oak. The builders are Messrs. Benfield & Loxley, of Oxford, and the architect is Mr. E. P. Warren, of Westminster. The perspective was exhibited at this year's Royal Academy.—The drawing of the Papal Palace at Avignon, by Mr. Percy Wadham, is worthy of study as careful and accurate draughtsmanship in that difficult medium—line. We have in hand two other large drawings by this able draughtsman which will be published shortly. This mediæval palace of the Popes has been in a state of decay for over a century—indeed, ever since it was handed over to the First Republic by the Popes—but is at last to be preserved. It was this palace that Froissart characterised as the most complete stronghold and the most beautiful abode in the world. Its strength was undoubted, and it was one of the finest examples of the military architecture of the fourteenth century; but there were certainly two opinions as to its beauty. Seven popes reigned here between the election of Clement V. and the return of the eleventh Gregory to Rome, and most of them added to the already huge dimensions of this temporary Vatican. Since then it was occupied for a century as a barracks, and its chambers cut up into guard-rooms and dormitories. The soldiers have not been respectful towards the frescoes or the sculptured work ornamenting many parts of the great construction. Among the numerous acts of vandalism committed has been the desecration and, it may be said, the obliteration of the mural paintings in the Chapels of St. John's Tower representing scenes in the Baptist's life, the Crucifixion, and St. Martial. Furthermore, frescoes representing the Last Judgment and Christ on the Cross, are utterly defaced. The citizens of Avignon want to turn the château into a museum of religious art, but this and the building of a new barracks will necessitate a large outlay. Thus great difficulties are in the way, and it may be a long time yet before the Palace of the Popes becomes a rendezvous of intelligent or merely curious visitors from every quarter of the globe. The Emperor Napoleon the Third promised so far back as 1859 to apply 4,000,000f. to the restoration and preservation of the palace as an interesting historic relic, but he was too fully occupied with other schemes and projects to carry out his promises. The castle or palace rises majestically from the banks of the Rhone. John Stuart Mill lived at Avignon for some years.

A Greek Competition. The United States Consul at Patras gives notice in a report of a competition for plans for a church in that city. The decision has been reached to substitute a new building for that dedicated to St. Andrew, which was erected early in the second quarter of the last century, and for this purpose a sum of 2,000,000 drachmæ has been set apart. Assurance is given that contributions from foreign architects who may wish to compete will be welcomed. The general style will be Byzantine. The Consul adds some of the governing conditions, sufficient, he thinks, to enable artists and architects to decide whether they can afford with profit to enter the contest. The general dimensions are left to the discretion of the architect, but the whole structure must come within a ground space of 25,834 sq. ft.; in making the plans attention must be paid to the possible effect of earthquakes, to which the region is subject; and accommodation must be provided for at least 5,000 worshippers, exclusive of standing room, which is to be provided in the women's apartments and other annexes. It is intimated that possible models may be found in the Russian Church of St. Nicodemus at Athens, or in the Church of Sta. Sophia at Constantinople. The competition will be divided into two parts, only those who pass the first degree being entitled to enter the second. For the former certain general conditions are laid down, and the preliminary plans thus submitted will be examined by the committee, of which the Metropolitan Bishop of Patras is the chairman. Those successful in passing this degree will be required to meet some additional requirements. The competitions for the preliminary trial will close on February 13th, 1903, when those who have passed with success into the second degree will be allowed an additional 150 days from the time that decision is made. The final plans will be submitted to some European academy of fine arts. When it has decided upon the merits of the plans, the committee will award a first prize of £400, a second of £160 and a third of £80.

A Hippodrome for Manchester. Mr. Bertie Crewe has prepared the plans for a new building at Manchester to be called the Royal Hippodrome. On either side will be a winter garden, with small stage and orchestra, into which the public will be admitted while waiting for the doors to open, and where they will be entertained with vocal and instrumental music, &c. One of these, the larger, will be set aside for the occupants of stalls, circle and pit, and the other for the gallery. This will serve to keep the crowds off the street. A complete set of entrances and exits will lead direct from these gardens to all parts of the hippodrome. The auditorium will be no less than 105ft. from curtain line to back wall, and 90ft wide, in spite of which there will not be a single column of any description in the line of sight, the entire circles being supported on the cantilevers. The ceiling will be domed and surmounted by a sliding roof worked by electricity from the stage. The latter will have a depth of 42ft. and a width of 90ft., and will be 58ft. to the gridiron floor. Under the stage will be a tank with a superficial area of 600ft., and Mr. Crewe has designed a means whereby the whole stage above this tank can be slid off, so that when water effects are required they can be ready in three minutes. A specially-designed ring will also be used on this stage, so that every class of performance can be exhibited without a large portion of the auditorium floor being taken up. The width of the proscenium opening will be 40ft. The dressing-rooms are in a separate fire-resisting block The building will be opened on August Bank Holiday, 1903.

Llan-Degvan Church. This church has been re-opened after restoration. The walls, which were composed chiefly of local boulder stones, had been originally built with tempered clay which would be the only means at hand in the fourth century, when lime mortar was unknown in Anglesey. The old oak principals of the roof were reduced by decay to a small core in each beam. By dint of careful selection of these cores, the builders, Messrs. R. & J. Williams, of Bangor, have saved enough to enable them to make an altar. The new roof has been most carefully made to appear as nearly as possible like the

old roof. The furniture of the church consists of new oak seats, pulpit, reading desk and chapel screen. The lighting of the church is effected by nine new lamps, hung from the roof beams by chains and links. The outer and inner doors of the porch and the vestry door are of new English oak. The floor has been laid with wood blocks of Canadian maple on a concrete bed. In the chancel have been placed a carved dado of alabaster and a super-altar of the same material. The sanctuary floors are laid with white marble. The old stoup has been fixed in position "tooled" and cleaned. The old font has been mounted and placed outside to the right of the porch. This font was found in 1848 in the garden at Pant Howell, and was afterwards removed to the churchyard. The windows have, with one exception, been renewed, the mullions in all of them being of Cheshire red sandstone. The old monuments have been cleaned and refixed. The architect of the restoration was Mr. P. S. Gregory, of Bangor.

Official Architecture. In the note on the office of Supervising Architect of the United States Treasury Department, the reorganization of which was begun by Mr. Aiken and carried by Mr. John Knox Taylor to a higher level than was thought possible, the "American Architect" says:—"The personnel of the office is of an unusually good type, and the place has acquired the real atmosphere of an architectural studio, to have access to which a young man may now honourably be eager. Ten years ago it would never have occurred to us to recommend an able young man to secure a position in the Supervising Architect's office; it would have been simply to advise his voluntarily seeking to degrade his own talent and set a bar across the path of his professional progress. Happily, things are changed, and we can now not only advise but urge young men of ability, who have not the connection and backing that entitle them to believe they can become successful private practitioners, to seek a position in the Government office."

Aston Hall. Aston Hall, Birmingham, is now nearly 270 years old, and numerous repairs are being carried out under the supervision of Mr. J. A. Cossins, architect. For the past fifteen years the hall has been practically continuously in the hands of the workmen. Minor repairs are constantly being executed, and the work is necessarily of a slow character. The greater portion of the work is out of sight, consisting as it does of strengthening by underpinning, &c., beams and dangerous fireplaces especially having been given attention. Last year the great work which had to be undertaken was the reinstatement of one of the pavilions on the south side. When that was completed one of the small towers was found to be in a dangerous condition. Scaffolding was erected to enable the men to take out certain rotten timbers to replace them with new and with iron girders, to reinstate all the lead-work on the roof, to repoint the whole of the brickwork and also to deal with a great deal of the stonework. This work has just been finished. The workmen are at present engaged in making sound some of the decayed stone parapets and other works as they are discovered. Other parts of the hall to which considerable attention has been devoted is the roof-tiling and many of the lead gutters. Mr. Cossins states that the old foundations of the hall, from end to end, are faulty, and this is responsible for much of the work which is necessary. In a few years the hall will be in a much stronger condition than has been the case for more than a century.

A Leeds Church. Trinity Congregational Church, Leeds, illustrated on this page, is a new building now being completed from the designs of Messrs. Danby & Simpson, architects, of Leeds. The total cost will be about £23,000. The church consists of nave, aisles, transepts, chancel and a tower and a spire rising to 130ft. The main entrance is approached by a flight of stairs leading to an outer vestibule—at what would be the west front were the building oriented in the usual ecclesiastical style; as a matter of fact, it is south-east. Above is a seven-light window, and there is a corresponding window at the chancel end (by Messrs. Atkinson Brothers, of Newcastle-on-Tyne). The pulpit is at the corner of the southern transept, and is of carved oak resting on a pediment of Caen stone, relieved with alabaster pillars. The fittings in the chancel, the choir stalls and the organ-case are also in carved oak; while the pews are of pitch-pine, and accommodate 800 worshippers. There are no galleries. The contracts were in every case let to local firms, the list being as follows:—Masonry, Messrs. C. Myers & Sons; carpentry, Messrs. H. Atkinson & Son; plastering, Mr. J. W. Watson: slating, Messrs. J. Atkinson & Son; plumbing, Messrs. W. Barrand & Co.; painting, Mr. A. Bateman; heating apparatus, Messrs. J. & H. Smith; electric lighting, Mr. Norman Hirst and Mr. A. Dickinson. The illustration on this page has been kindly lent to us by the "Leeds Mercury."



TRINITY CONGREGATIONAL CHURCH, LEEDS. DANBY AND SIMPSON, ARCHITECTS.

New Patents.

These patents are open to opposition until November 24th.

1901.—Excavators.—18,276. J. L. Powell, 16, Clive Place, and S. H. Davey, 104, Plymouth Road; both of Penarth, near Cardiff A number of buckets with cutting edges are arranged on the face of a disc which is rotated by any convenient means. The material is thus excavated and carried round in the bucket to the opposite side, where it falls out into a truck. The device may be used in the heaviest clay, as this cannot become stuck but must fall out when the bucket has passed a certain angle.

Automatic Electric Lifts.—18,577. J. Bush, 90, Lausanne Road, Peckham; and M. T. Medway, 175, Shardeloes Road, Brockley, Kent. By pressing a button on any floor all the other call-buttons are cut out and the lift goes either up or down to the floor in question, and there stops. When the passenger enters the lift his weight again cuts out the call-button, but the lift buttons are put in circuit by the closing of the gate. The passenger then presses the button for the particular floor he wishes to reach, and the lift is operated accordingly.

Combined Lock and Latch.—18,756. E. T. John, "Mayfield," Llanbadarn Road, Aberystwyth. The fastening can be opened by hand when unlocked and by a key when locked, and can also be fastened so that no key can open it, thus forming a locked bolt.

Hot-water Heating Apparatus.—18,930. O. M. Row & Royles, Ltd., 131, Great Bridgewater Street, Manchester. A casing is fitted on the flow pipe (preferably near the calorifier) with a small turbine inside for driving the water forward and thus creating a more rapid and uniform circulation than is afforded by the natural flow. The turbine is driven by a jet of steam from the calorifier steam-pipe, and, after use, is delivered into the calorifier to heat the water.

Lubricating Pug-Mills.—20,584. A. E. Glazebrook, Albion Villas, Colley Lane, Cradley, Staffs. The forming die has a series of fine perforations through which the lubricant—oil, water or steam—is forced. In some cases shields may be used to prevent the perforations becoming clogged with the clay.

1902.—Shallow Drains.—703. W. G. Nicoll, Eastwood, Parkstone, Dorset; F. Swinburne, North Street, Emsworth; and R. G. Carte, Burndale, Emsworth, Hants. The drain is square in section, with a central circular hole in it. It is made of concrete or other suitable material, and when laid its upper surface forms part of the pavement.

Concrete Piles.—7,984. A. E. Williams, Dagenham Dock, Essex. A double-flanged beam of steel or iron extends from end to end of the pile and is moulded around with concrete. It is encircled by transverse metal hoops or bands embedded in the concrete, and the lower pointed end of the pile is formed by cutting away the web and bending the flanges of the beam inwards.

Artificial Asphalt.—10,423. R. Hermes, Guben, Germany. The mixture consists of 11 parts of tar and 2 of resin, heated together, and the addition first of 1 part of sulphur and then of 11 parts of powdered lime.

The following specifications were published on Thursday last, and are open to opposition until December 1st. A summary of the more important of them will be given next week.

1901.—18,764, Fripp & Watt, window fastenings. 18,913, Davidson & Davidson, cutting holes in wood. 19,224, British Thomson-Houston Co., Ltd., & Holden, electricity meters. 20,064, Hunt, self-sustaining gear for lifts, hoists, &c. 20,075, Redman, gas pilot-lights. 20,218, Barnsley, Barnsley & Barnsley, automatic brakes for pulley blocks, hoists, &c. 20,287, Wehinger, machinery for making wood-flooring. 20,325, Thomson, carrying standards of window fittings. 21,921, Maschke, dust collecting and removing apparatus. 22,277, Irwin, tap. 22,626, Garnier, means for securing windows. 22,729, Feeny, portable ramps. 22,788, Hamilton, fixing tiles in grates. 22,946, Cartland, door top hinges. 22,992, Collins & Milne, bolts for doors, windows, &c. 23,630, Krauss, means for thawing frozen pipes. 24,396, Britton, door checks. 24,605, Taylor, hot-water heating apparatus.

1902.—679, Howard, parallel rulers, protractors, &c. 5,096, Hendry, window-sash frames. 5,557, Hamilton, fixing tiles in grates. 12,538, Ott, soldering apparatus for band-saws. 13,881, Bromley, combined fire-escape, household lift, &c. 14,801, Washington, Stanton & Woore, heating and protecting system for pipes, fire-plugs, &c. 14,876, Dietrich, steam-heating systems. 16,500, Frederiksen, locks. 17,012, Angus, impregnating wood. 17,468, Adams, sink supports.

Law Cases.

Defrauding Messrs. Young & Marten: Traveller committed for Trial.—At Stratford recently John Locke (thirty-four), a traveller for Messrs. Young & Marten, Ltd., builders' merchants, of the Broadway, Stratford, E., was charged on remand with obtaining £15 17s. 9d. by false pretences, and with forging and uttering two cheques for £15 17s. 9d. and £10 with intent to cheat and defraud his firm. On August 23rd he was given a cheque for £15 17s. 9d., sent by J. W. Carr, a builder, of Acton, with instructions to hand it back and get another cheque for £3 more in full payment of an account which was in dispute, but, instead, he gave Mr. Carr to understand that he was authorised to accept the £15 17s. 9d. in full payment of the disputed account, and thereupon Mr. Carr marked the cheque "Please pay cash," and the prisoner got cash for it at the bank. In the second case a Mr. H. Roberts, plumber, of Eltham, sent a cheque for £10 to the prisoner in connection with an account with Messrs. Young & Marten, and prisoner, instead of forwarding the cheque to the firm, sent it to his landlord's agent in response to a demand for rent due. In each case the cheque was endorsed "Young & Martin," and Mr. P. B. Wood, the secretary, pointed out that in all his communications to the firm prisoner invariably wrote "Martin" for "Marten." After a long hearing Locke was committed for trial on the three charges.

Alleged Damage by Tube Railways.—At Red Lion Square, Holborn, last week Mr. Under-Sheriff Burchell and a special jury heard the case of *Matthews* v. *the Great Northern and City Railway Co.*, a claim for compensation in respect of structural injury alleged to have been caused to Nos. 110 and 126, New North Road, by subsidence due to the construction of the new "tube" railway from Finsbury Park to the City. The claimant stated that from the end of the year 1900 until recently various structural defects had developed. On behalf of the company counsel contended that the method by which the "tubes" are constructed, by means of the "Greathead shield," precluded the possibility of any movement or subsidence of the soil through which they are driven; and that the houses in question were sixty or seventy years old and rested on very shallow foundations. Mr. E. A. Gruning and Mr. H. Chatfeild Clarke, architects; Mr. Leslie R. Vigors, surveyor, and Mr. Johnston, engineer to Messrs. Pearson, the contractors for the line, were among the witnesses. The jury's verdict was unanimous for the defendant company, that damage had not been done by the construction of the "tube" but that it was the work of time.

Plumbing with Rags and Paper.—At the North London Police Court recently a plumber named Coaker was prosecuted by the Islington Borough Council for having improperly set up soil pipes. Sanitary Inspector Metcalf said that Coaker had run molten metal into the joints of the pipe where it was easily observable, but at the back of the pipe the joints were stuffed with rags and paper. This was in August, and the pipes were still in the same condition. Coaker said he could not deny it, but the fact was he was assaulted by some men on the job, and was unable afterwards to do the work or properly supervise it. A fine of 40s. was imposed, with a penalty of 20s. per day for fourteen days, altogether £16, or a month's imprisonment.

An Architect's Speculation.—On Friday last at the Whitechapel County Court Mr. W. A. Longmore, architect, of Great Alie Street, sued Mr. G. T. C. Goatley, of the United Lay Solicitors' Agency, 93 and 94, Chancery Lane, for the return of £30 advanced under peculiar circumstances. The defendant represented to the plaintiff that the Hackney Safe Deposit Co. was about to be registered as a limited liability company, and that the plaintiff might be its architect if he subscribed a sum of £50 to preliminary expenses. To this the plaintiff agreed, but when he had advanced £30 he grew suspicious, and withdrew from the bargain. The defendant admitted that the Hackney Safe Deposit Co. had not been registered, but did not see why the money should be returned. Judgment for plaintiff with costs.

"Squares" under the L.B.A.: Important Case.—At the Bow Street Police Court on Thursday last Samuel Poldew, builder, Woodstock Road, Uxbridge Road, was summoned by Charles Foster Hayward, district surveyor, for contravening the London Building Act, 1894.—Mr. Hayward said the defendant was erecting a large building at 116, High Holborn, the basement to be used as shops and the four upper floors as flats, each of which would accommodate at least three persons. Section 74, sub-section 2, of the London Building Act, 1894, provided that in every building exceeding ten "squares" (1,000 ft. super.) in area, used in part for the purpose of trade or manufacture and in part as a dwelling-house, the different parts should be separated by walls and floors of fire-resisting materials and have staircases and passages constructed in a similar way. In the building in question there was a staircase about 3ft. wide. It was made of deal, and stood some distance from the shop door; there was an awkward bend, and in case of fire the people in the flats would have a great deal of difficulty in getting out. He had served notices on the defendant, who had tried to evade doing what he would have to do if the building exceeded ten "squares" in area by walling up two vaults. But even then the building came within the Act, as the area was still slightly in excess of the ten "squares." He considered the place a perfect "fire trap." He was continually receiving circulars from the London County Council as to the precautions to be observed against fire.—Mr. Fenwick: If there were no vaults, and the area or the building was slightly less than ten squares, would the danger be as great?—Mr. Hayward: Yes.—Council for the defendant said he was in a position to prove that now the vaults had been walled off, the area of the building was less than ten "squares," or 1,000 ft. super., and therefore did not come within the section of the Act under which these pro-

ceedings were taken. The section was very restrictive, and if a man could erect a building just small enough to evade it he was quite justified in doing so. Counsel then called witnesses to prove that the area of this particular building was less than ten "squares," but they agreed that if a staircase which was to be erected outside was to be included that measurement would be exceeded.—Mr. Hayward contended that the staircase, although outside, would form part of the building, and should be included in the measurement.—Mr. Fenwick said the case was an important one, and he would reserve his decision until this week

Keystones.

At St. Agnes's, Kennington Park, choir stalls have been erected at a cost of about £300 as a memorial to Queen Victoria.

At St. Paul's Church, Wooburn, Bucks, a new bell has been added to the seven ancient bells, which have been rehung in celebration of the Coronation.

St. Peter's Vicarage, Southwark, is shortly to be erected in Sumner Street from plans by Mr. A. H. Ryan-Tenison, A.R.I.B.A., of 12, Little College Street, Westminster, S.W.

A Fire Station at Coventry has been erected at a cost of about £5,000. It occupies an area of about 1,220 sq. ft. on the Pool Meadow, and is two storeys in height, with an ornamental tower rising to a height of some 70ft.

The Young Men's Christian Association Premises in London Road, Lowestoft, are being enlarged by an additional storey. Mr. Herbert J. Greene, A.R.I.B.A., of Norwich, Lowestoft and Lynn, is the architect, and the contractor is Mr. John Ashby, of South Lowestoft. The front of the building will have Costessey moulded dressings.

St. Peter's Boys' School, Southwark.—A new boys' school to serve this parish is to be modelled from the existing grammar-school building, in accordance with the plans sanctioned by the Board of Education and prepared by Mr. A. H. Ryan-Tenison, A.R.I.B.A., of 12, Little College Street, Westminster, S.W.

Hartshorne Parish Church is being restored. The scheme includes the restoration of the chancel and enlargement of the church by building a new aisle and vestries, and the restoration of the nave and tower, at a total estimated expenditure of £2,711. The plans for the restoration have been prepared by Mr. G. F. Bodley, R.A. Messrs. Ford & Co., of Derby, are the contractors.

A Wesleyan Church and School at Kington has been erected at a cost of about £2,200. The style is Gothic, and the materials are pressed brick with Bath-stone dressings. The woodwork is of pitch-pine, with the exception of the rostrum, which is of polished American walnut. The church seats 200. The schoolroom, built at right angles to the church, accommodates 300 children. The architects were Messrs. W. T. Morley & Son, of Bradford, and the contractors Messrs. Bowers & Sons, of Hereford.

The Arts and Crafts Exhibition Society have been awarded special honours at the Turin International Exhibition of Decorative Art. By unanimous vote of the international jury a special diploma of honour was given to the Society. Their next exhibition of decorative design and handicraft in London will be held at the New Gallery and will open in the middle of January. Owing to the limits of space the works shown will be those of artists and craftsmen of the United Kingdom. The receiving days will be the last three days of December.

Municipal Buildings at Jarrow are being erected at an estimated cost of about £9,000, in Grange Road. The elevations are in Renaissance style. Mr. Fred Rennoldson, of South Shields, is the architect, and Mr. James C. Nichol, of South Shields, the contractor.

At Newtown Parish Church a stained-glass window has been erected as a memorial of Queen Victoria, at a cost of £400, from designs by Mr. R. Creed, architect, of Finsbury Circus, London. The execution of the work was entrusted to Messrs. James Powell & Sons, Whitefriars, E.C.

At St. Jude's School, Southwark, extensive alterations and additions are to be carried out in accordance with plans sanctioned by the Board of Education and prepared by Mr. A. H. Ryan-Tenison, A.R.I.B.A., of 12, Little College Street, Westminster. The tender of Messrs. Parsons & Co, of Wandsworth, standing at £2,200, has been accepted subject to the work being executed in sections.

Preservation of Derwentwater.—Princess Louise, vice-president of the National Trust for Places of Historic Interest or Natural Beauty, last week opened the Brandelhow estate on Derwentwater, which the Trust has acquired for the use and enjoyment of the public in perpetuity at a cost of about £7,000. The property comprises 108 acres of picturesquely-wooded and common land on the shore of the lake.

Truro Cathedral.—At the last meeting of the General Committee of Truro Cathedral the financial report was presented, and showed that after allowing for expenses there would be a surplus of over £1,800. The architect and contractors, it was also stated, were perfectly satisfied with the progress and condition of the building, and saw no necessity for the removal of the fractured bases of the nave. The building operations will in all probability be completed by May 1st next.

The Ruskin Memorial.—Lord Avebury laid the foundation-stone of the first portion of the Ruskin memorial building at Bournville yesterday. Alderman George Baker, who succeeded Mr. Ruskin as Master of the Guild of St. George, presided. The building will embrace library, lecture-room and rooms for the study of handicrafts, &c., and will enable the committee to carry out at an early date a practical experiment on the lines of Mr. Ruskin's teaching.

"Academy Architecture" for 1902 (vol. 21) forms, as usual, a most interesting collection of architectural drawings hung at the Royal Academy Exhibition, the Royal Scottish Academy, and the Royal Glasgow Institute of the Fine Arts, as well as sculptures, and numerous designs by English and Continental architects. A colour plate is given of the Board Room in Electra House, Finsbury Pavement (Mr. John Belcher, A.R.A., architect); of the interior of a church by Mr. G. H. Fellowes Prynne, F.R.I.B.A., at Lower Sydenham; and of a house at Littlestone-on-Sea, by Mr. John Cash, F.R.I.B.A. "Academy Architecture" is published at 58, Theobald's Road, W.C., price 4s. 10s. nett.

The Ruins of Tintern Abbey came into possession of the Crown recently on the disposal of the Beaufort estates in Monmouthshire, and the Department of Woods and Forests is engaged in works of preservation and restoration. Mr. Waller, of Gloucester, one of the Crown architects, has the supervision of the work, and an endeavour is being made to restore old material to its original position where possible. In connection with this object extensive excavations have been made, and portions of the ruins which have long remained hidden beneath several feet of soil have been disclosed, notably the lay brothers' quarters and the ancient watercourse made by the builders of the Abbey.

The new Fever Pavilion at the Swindon Hospital, Gorse Hill, is to be opened to-day. Mr. A. J. Colborne, Newport Street, Swindon, was the contractor.

At St. Wilfrid's Catholic Church, Hull, a stained-glass window has been erected. The work was executed by Mr. Norman Reed, of Newcastle-on-Tyne.

A Public Library at Falkirk has been opened by Mr. Andrew Carnegie. Messrs. M'Arthy & Watson, of Frederick Street, Edinburgh, were the architects. It is two storeys in height. The cost has been £6,000.

Mr. H. Syer Cuming, a vice-president of the British Archæological Association, died recently in his eighty-sixth year. His museum of interesting and valuable natural and artificial rarities, of which his father, the late Mr. Richard Cuming laid the foundation so far back as 1782, has been bequeathed to the Newington Public Library, Walworth Road.

The Pretoria Cathedral.—Despairing of being able to erect a sufficiently large section of the proposed new cathedral in Pretoria, the bishop of the diocese has been compelled to enlarge the present temporary structure, and the work of throwing out the aisle is now in hand. It will cost £650, and provide 200 additional sittings, making a total of 620. The bare shell of the new cathedral will cost £20,000, of which only £2,000 is subscribed.

Manchester Infirmary Site: The Matter Settled.—At a special general meeting of the trustees of the Manchester Royal Infirmary, held on Thursday last, a resolution was passed confirming the policy that there shall be no rebuilding of the infirmary on the Piccadilly site; that that building and site be disposed of on terms to be approved by the trustees and sanctioned by the Charity Commissioners; and that a new infirmary, on plans to be approved by the trustees, be built at Stanley Grove without delay unless a better site can be obtained.

A Municipal Art Gallery Wanted.—Six deputations have asked the Hampstead Council to facilitate the provision of a Municipal Art Gallery and Museum for the borough. The speakers included Sir Samuel Wilks, Mr. Storey, A.R.A., and others representing the local art, scientific, antiquarian and medical societies. The council was asked to sanction the erection of the art gallery and museum by public subscription on a site, belonging to the borough, adjoining the Central Public Library, Finchley Road, and thereafter to maintain the building out of the penny library rate.

A new County School at Wrexham has been erected at a cost of about £10,000. It accommodates 140 boys and 125 girls, and is arranged in two sections, with a large assembly hall occupying the central position, common to both. The staircases are of granolithic concrete, constructed by Messrs. Ward & Co., of London. The floors generally are of wood blocks, laid by Messrs. Ward & Co. The heating is by open fire-places and hot-water pipes, which are carried throughout the building. Messrs. Lander's grates are used, and the hot-water heating has been carried out by Messrs. Dargue, Griffiths & Co., Liverpool. The whole of the building is of bricks, faced with Messrs. J. C. Edwards & Sons' Ruabon best-pressed bricks, and the stone used in moulded and plain work is from the Cefn Quarries. The roof is of slate. Mr. W. E. Samuels, of Wrexham, was the contractor. The architect was Mr. John H. Phillips, M.S.A., of Cardiff, whose designs were selected in open competition.

Tenders.

Information from accredited sources should be sent to "The Editor" at latest by noon on Monday if intended for publication in the following Wednesday's issue. Results of Tenders cannot be accepted unless they contain the name of the Architect or Surveyor for the work.

Addressed postcards on which lists of tenders may be stated will be sent post free on application to the Manager, BUILDERS' JOURNAL, *Effingham House, Arundel Street, Strand, W.C.*

Aston Manor (Birmingham).—For the erection of stabling, roller-house, workshops, offices, foreman's house and one cottage, for the Aston Manor Urban District Council. Mr. G. J. Jack, C.E., surveyor:—

A. Ford	£9,215
H. Allen	9,209
W. G. Morris, King's Heath	9,200
A. Heaps	8,982
E. Crowder	8,785
G. Harley & Sons, Smethwick	8,619
A. G. Teale, Aston Manor, Birmingham	8,388
W. Lee & Sons, Aston Manor, Birmingham	8,311
A. C. Hughes	8,279
W. & G. Webb	8,230
W. H. Gibbs, King's Heath	8,181
T. Johnson	8,000
B. Whitehouse & Sons	7,893
Smith & Pitts	7,777
D. Roberts, Handsworth, Birmingham	7,775
G. Trentham,* 24 Heathfield Road, Handsworth, Birmingham	7,634
W. Hopkins	7,470

* Accepted. [Rest of Birmingham.]

Aston Manor (Birmingham).—For the erection of a reading-room at Aston Cross, for the Aston Manor Urban District Council. Mr. G. H. Jack, C.E., surveyor:—

A. Ford	£2,177
A. Heaps	2,133
F. Nicholls & Co.	2,050
W. G. Morris, King's Heath	2,047
D. Roberts, Handsworth	2,000
W. H. Gibbs, King's Heath	1,998
W. & G. Webb	1,993
E. Crowder	1,950
A. G. Teale, Aston Manor	1,930
W. Lee & Sons, Aston Manor	1,899
B. Whitehouse & Sons, Monument Road, Edgbaston	1,859
A. Colin Hughes, 54 Stratford Road	1,850
T. Johnson, Great Brook Street	1,847
Smith & Pitts,* 418 Moseley Road	1,777

* Accepted. [Rest of Birmingham.]

Beckenham.—For making up the following roads:—Downs Road, 100yds. in length; Beckenham Grove, 400yds. in length; for the Beckenham Urban District Council. Mr. John A. Angell, surveyor:—

Kavanagh & Co., Surbiton Hill, Surrey	£2,858 0 10
Fry Brothers, Lion Wharf, Greenwich, S.E.	2,727 18 10
W. Pearce, Havelock Hill, Forest Hill, S.E.	2,501 18 10
Mowlem & Co.,* Grosvenor Wharf, Westminster	2,420 0 0

* Recommended for acceptance.

Bromley (Kent).—For business premises, High Street, Bromley, Kent. Messrs. Wadmore, Wadmore & Mallett, architects, 8 Bream's Buildings, Chancery Lane, E.C. Quantities by Mr. W. J. Pamphilon, 21 Finsbury Pavement, E.C.:—

Lyme & Duncan	£8,867	R. A. Lowe	£7,649
Larke & Sons	8,540	Arnaud & Son	7,577
D. Payne	8,090	T. D. Graty	7,489
Bulled & Co.	7,831	F. P. Duthoit,* Bromley	7,416
T. Graham	7,700		
Crossley & Son	7,674	F. W. Green	7,231

* Accepted.

Cork.—For rebuilding premises in Academy Street, for Messrs. Baker & Wright. Messrs. Arthur Hill, B.E., M.R.I.A., architect, 22 Georges Street, Cork:—

Hamilton & Co., Dublin	£2,400	T. Kearns	£2,118
A. Gaul	2,300	D. Kelleher	2,077
P. Murphy	2,270	S. Hill	2,037
E. & P. O'Flynn	2,150	J. Delaney & Co.*	1,900

* Accepted. [Rest of Cork.]

Godalming.—For carrying out new kerbing and tar-paving works within the borough, for the Town Council. Mr. J. Herbert Norris, borough surveyor:—

R. D. Daniell, London, W.	£1,509 11 6
G. A. Franks, Guildford	1,246 0 0
W. Norris, Upper Hale, Farnham	1,225 0 0
W. H. Wheeler, London, S.E.	1,203 0 0
C. Ford, Harlesden	1,169 0 0
Streeters & Todhunter, Meadrow, Godalming	1,068 0 0

London, W.—For the erection of board room and clerk's offices (part No. 1), also receiving home and out-relief offices, &c. (part No. 2), for the Guardians of Hammersmith:—

Part No. 1.

H. Dakin & Co.	£8,330 15 0
Balaam Brothers	7,290 0 0
W. J. Renshaw	6,832 0 0
W. Marriage & Co., Croydon	6,676 0 0
General Builders, Ltd., Wharf Road	6,643 0 0
T. Bendon, Hammersmith	6,571 0 0
Thomas & Edge, Woolwich	6,547 0 0
Holliday & Greenwood, Ltd.	6,487 0 0
Sims & Woods	6,450 0 0
H. L. Holloway, Deptford, S.E.	6,440 0 0
H. Lovatt, Wolverhampton	6,400 0 0
A. Kellett & Sons	6,392 17 9
H. Wall & Co.	6,387 0 0
G. Wimpey & Co.	6,371 0 0
J. & M. Patrick	6,270 0 0
B. E. Nightingale	6,198 0 0
Todd & Newman	6,169 0 0
J. E. Johnson & Son, Leicester	5,927 0 0
Dearing & Son,* Halliford Street, Islington, N.	5,803 0 0

* Accepted.

Part No. 2.

H. Dakin & Co.	£19,497 12 3
Balaam Brothers	16,550 0 0
General Builders, Ltd.	16,187 0 0
H. Lovatt	15,800 0 0
G. Wimpey & Co.	15,776 0 0
A. Kellett & Sons	15,739 6 8
T. Bendon	15,637 0 0
J. & M. Patrick	15,583 0 0
Thomas & Edge	15,499 0 0
B. E. Nightingale	15,401 0 0
Holliday & Greenwood, Ltd.	15,378 0 0
H. Wall & Co.	15,367 0 0
H. L. Holloway	15,300 0 0
J. E. Johnson & Son	15,199 0 0
W. Marriage & Co.	15,180 0 0
Todd & Newman	15,128 0 0
Sims & Woods	15,000 0 0
W. J. Renshaw	14,639 3 0
Dearing & Son*	13,976 0 0

* Accepted. [Rest of London.]

Margate.—For cutting and filling-in trenches and laying therein about 24,000yds. of cast-iron rising main 18in. in diameter, with all the necessary bends, junctions, fittings, &c., from Margate to Wingham, near Canterbury. Mr. Albert Latham, M.I.C.E., borough engineer:—

J. E. Kaye, Huddersfield	£47,000 0 0
W. Jowett, Prescott, Lancs.	25,924 0 0
Paramor & Sons, Margate	23,921 9 7
R. E. Hodgman, Ramsgate	23,689 1 0
T. Rowland, Northwich	23,174 18 10
J. Mowlem & Co., Westminster	22,506 0 0
A. S. Ingleton, Herne Bay	22,040 15 8
Reid Brothers, London, N.	21,034 2 8
W. L. Wallis & Co., Eastbourne	21,102 19 10
G. Bell, Tottenham, London, N.	20,889 11 4
Millen & Chrisfield, Sittingbourne	20,660 5 0
Westminster Construction Co., Westminster	20,009 5 6
T. C. Starkey, Hull	19,335 4 6
J. & T. Binns, Croydon	18,769 8 3
A. Beale, Streatham	18,221 17 5
H. P. Embrey, Ltd., Stoke-on-Trent	18,159 2 0
C. Chamberlain, Leicester	17,308 10 0
A. E. Nunn, Tenterden, Kent	16,939 0 0
J. H. Vickers, Ltd., Nottingham	15,670 0 0
B. Cooke & Co., Westminster	15,662 14 1
J. Pollock & Co., Catford	15,587 0 5
Tuff & Muskin, Rochester	15,410 16 7
H. Roberts, West Bromwich	15,299 16 3
R. H. B. Neal, Plymouth	15,202 12 7
J. Moffatt, Manchester	14,938 1 5
W. Manders, Leyton, London	14,871 0 0
S. Saunders, London and Dudley	14,417 19 7
Dean & Co.,* Chiswick	13,884 3 9

* Accepted.

Sidmouth (Devon).—For the erection of an hotel at Sidmouth, Devon, for the Sidmouth Hotels Co., Ltd. Mr. R. W. Sampson, architect, Manor Offices, Sidmouth:—

R. Tucker & Sons, Sidmouth	£25,000
Stevens, Sons & Bastow, Bristol	24,949
Skinner & Luxton, Sidmouth	23,887
Richards, Plymouth	23,108
Dart, Crediton	23,000
Bovey & Son, Torquay	22,800
Granger, Whimple	22,687
Woodman & Sons, Exeter	22,400
Stevens & Sons, Ltd., Exeter	22,147
Blake,* Plymouth	20,362

* Accepted.

Southampton.—For the erection of Southampton head telegraph office, for H.M. Office of Works, &c.:—

Jenkins & Sons, Ltd.	£18,637
H. Stevens & Co.	18,349
Stephens, Bastow & Co., Ltd.	17,988
H. Cawte	17,956
Golding & Ansell	16,600

Tunbridge Wells.—For the erection of general hospital. Mr. H. Percy Adams, F.R.I.B.A., architect, 28, Woburn Place, Russell Square, London. Quantities by Mr. S. G. Thacker, 90, High Holborn:—

Mansfield	£26,098
Davis & Leany	25,337
Prestige, London	24,913
Beale	23,806
Colls & Sons, London	23,747
Strange	23,592
Wallis, Maidstone	22,860
Kerridge & Shaw, Cambridge	22,495
Gough & Co, Hendon, N.W.	22,384
Jarvis*	21,983

[Architect's estimate, £21,750. Rest of Tunbridge Wells.

* Accepted.

Uttoxeter (Staffs).—For sewerage and sewage-disposal works, for the Uttoxeter Urban District Council. Messrs. Wilcox & Raikes, engineers, 63, Temple Row-Birmingham:—

W. Granam & Sons, Huddersfield	£17,300 0 0
J. Bennson, Hull	16,855 0 0
H. P. Embrey, Fenton, Staffs	16,573 0 0
F. Woolley, Ashton-under-Lyne	15,995 0 0
Jowett Brothers, Burscough	15,275 10 4
J. & J. Warner, Mickleover, Derby	15,268 0 0
G. F. Tomlinson, Derby	14,990 0 0
B. Cooke & Co., Westminster	14,968 0 0
J. S. Dawson, Bredbury, near Stockport	14,917 10 6
Johnson & Langley, Leicester	14,815 0 0
G. Trentham, Handsworth	14,716 0 0
J. & T. Binns, Croydon	14,703 2 3
W. Jones & Sons, Neath, South Wales	14,616 5 0
G. Bell, Tottenham, N.	14,561 0 0
W. J. Foster, West Hartlepool	14,230 0 0
W. Morley & Sons, Cannock, Staffs	14,115 6 7
R. W. Barker, Harrogate	14,047 9 0
Bower Brothers, West Bridgford, Notts	13,926 0 0
F. Barke, Stoke-on-Trent	13,913 0 0
Barker Brothers, Bradford	13,828 0 0
T. Vale, Stourport	13,800 0 0
T. Lowe & Sons, Burton-on-Trent	13,690 0 0
W. Smith & Sons, Ashbourne	13,171 0 0
J. Mackay,* 39, Bearwood Road, Smethwick	12,997 0 0

* Accepted.

Wolverhampton.—For the erection of a new hospital on land in Park Road West and Connaught Road, Wolverhampton, for the Committee of the Wolverhampton and District Hospital for Women. Mr. A. Eaton Painter, architect, 43, Lichfield Street, Wolverhampton:—

H. Lovatt	£12,787 0 0
S. & S. Ham	12,740 0 0
Lowe & Sons, Burton-on-Trent	12,556 0 0
T. Bowater	12,533 3 8
Speake & Sons	12,067 0 0
L. Jones	11,850 0 0
G. Cave	11,800 0 0
Midland Building and Supply Co., Tipton	11,775 0 0
J. Herbert	11,685 0 0
H. Willcock & Co.	11,505 0 0
H. Gough,* Dudley Road	11,400 0 0

* Accepted. [Rest of Wolverhampton.]

Ystrad Mynach.—For the erection of thirty-five houses at Ystrad Mynach, for the Ystrad Mynach Building Club. Mr. T. W. Millar, architect, Oxford Street, Mountain Ash:—

T. F. Howells, Cardiff	£5,705 0
Hamilton & Millard, Caerphilly	5,600 0
Colin Sara, Cardiff	5,600 0
R. Jones, Abertridwr	5,582 10
John Lewis, Caerphilly	5,550 0
J. Williams, Abertridwr	5,495 0
Thomas & Hughes, Llanbradach	5,337 10
Williams & Co.,* Cardiff	5,241 5

* Accepted.

Dudley.—For the erection of the Upper Standard School. Messrs. Barrowcliffe & Allcock, architects, Loughborough:—

		Asphalting.
Jakeman & Round, Dudley	£14,844	Not given.
E. Seckerson, Dudley	13,220	"
Walter G. Brown, Leicester	12,300	£350 0
F. Lindsay Jones, Wolverhampton	12,152	251 0
John Mallin, West Bromwich	12,000	2s. per yard.
Henry Gough, Wolverhampton	12,000	375 0
W. Hopkins, Birmingham	11,990	Not given.
Oakley & Coulson, Dudley	11,799	500 0
Arthur Faulks, Loughborough	11,790	376 10
John Dallow, Birmingham	11,650	Not given.
W. Deeley, Netherton	11,509	376 13
Mark Round,* Dudley	11,500	260 0
W Corah, Loughborough	10,960	470 16

* Provisionally accepted.

West Ham.—For the construction of about eight miles of route-length of tramways, and the paving of the sides of roads along the entire route, or the Corporation of West Ham, as follows:—(Contract No. 1) permanent-way and paving, including copper bonding; (1A) paving sides of roads. Messrs. J. E. Waller, M.I.C.E., 29, Great George Street, Westminster, and John G. Morley, Town Hall, West Ham, engineers:—

	Guernsey granite.	Aberdeen.	Leicester.	Penmaenmawr.	Welsh.	Norwegian.	Other Stone.	Deduction if Foreign Rails are used.
Macartney, McElroy & Co.	£177,933 18 2	£177,465 13 9	£173,768 2 10	—	£177,465 13 9	£154,223 19 5	(Kilsyth) - - -	£154,223 19 5 £1,000 0 0
J. J. Robson (d)	132,621 17 4	132,621 17 4	134,854 5 10	134,854 5 10	132,621 17 4	130,389 8 4		128,157 0 4 1,532 16 3
E. Nuttall	127,188 15 8	127,188 15 8	128,304 19 11	129,421 4 2	127,188 15 8	119 375 5 11		— 590 10 9
J. G. White & Co., Ltd.	127,115 2 5	129,347 10 11	129,347 10 11	133,812 7 11	129,347 10 11	119,301 12 8		— 1,211 12 6
Dick, Kerr & Co., Ltd.	119,034 17 11	119,304 17 11	120,211 9 7	119,034 17 11	119,034 17 11	112,337 12 5	(Swedish or Kilsyth)	112,337 12 5 —
T. Adams	118,688 1 4	118,688 0 0	118,688 1 4	—	118,688 1 4	111,990 15 10		— 1,680 2 6
J. Smith & Co. (c)	116,837 0 0	116,837 17 8	121,302 14 8	—	—	114,605 9 2		— —
W. Griffiths & Co., Ltd. (b)	115,798 0 10	120,262 17 10	121,379 2 1	114,681 16 7	119,146 13 7	107,984 11 1		— 1,167 2 10
F. Osman*	114,243 0 0	112,011 3 1	114,243 11 7	114,243 11 7	114,243 11 7	105,313 17 7		103,801 9 1 2,818 8 2
Works Manager, Town Hall, West Ham (a)	112,569 0 0	112,569 0 0	115,969 15 0	115,969 15 9	115,969 15 9	103,770 8 2	(Scotch) - - -	101,607 2 7 1,021 17 6
J. A. Ewart (e)	—	—	—	—	—	—		149,268 1 7 —

(a) Add £4,924 10s. if concrete is priced at 12s. instead of 2s. per yd. cube; (b) less £200 if tender accepted for Contracts Nos. 1 and 1A, and add £687 9s. if rails are required before January; (c) less 1 per cent. if tender accepted for Contracts Nos. 1 and 1A; (d) less 1 per cent. if tender accepted for Contracts Nos. 1 and 1A; (e) stone to be approved for Contract No. 1. * Accepted, but kind of stone not specified; less £400 if tender accepted for Contracts Nos. 1 and 1A.

Complete List of Contracts Open.

DATE OF DELIVERY.		WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDERS MAY BE OBTAINED.
		BUILDING:		
Oct	23	Merthyr Tydfil—Additions to Campsie House	Union Guardians	T. Roderick, Architect. Aberdare.
,,	23	Greenwich—Additions to Schools	Union Guardians	T. Dinwiddy & Sons, 12 Crooms Hill, Greenwich, S.E.
,,	23	Carmarthen—Boiler and Engine House		E. W. Reed, Clerk, Asylum, Carmarthen.
,,	23	Withington, Lancs—Chimney	Chorlton Union Guardians	D. S. Bloomfield, Clerk, Union Offices, All Saints, Manchester.
,,	24	East Cliff, near Dover—Coastguard Buildings	Admiralty	Director of Works Department Admiralty, Northumberland Avenue, London, W.C.
,,	24	Bradford - School	School Board	T. C. Hope & Son, 23 Bank Street. Bradford.
,,	24	Huddersfield—Two Semi-detached Villas		J. Berry, 3 Market Place, Huddersfield.
,,	25	Londonderry—Additions to Workhouse	Guardians	M. A. Robinson, Architect, Richmond Street, Londonderry.
,,	25	Silloth, Cumberland—Two Houses		G. Armstrong, 24 Bank Street, Carlisle.
,,	25	Cranbrook—Cemetery Chapel	Parish Council	C. D. Murton, Clerk, Council Offices, Cranbrook, Kent.
,,	25	Sedgefield—Infectious Diseases Hospital	Rural District Council	J. M. Bottomley, Son & Wellburn, Architects, Middlesbrough.
,,	25	Grange-over-Sands—Cement, Bricks, &c.	Urban District Council	T. Huddleston, Surveyor, Council Offices, Grange-over-Sands.
,,	27	Acton—Concrete Partition	Concrete Partition Co., Ltd.	J. Golding, 76 Finsbury Pavement, E.C.
,,	27	Beckenham—Timber Platform over Swimming Bath	Urban District Council	J. A. Angell, Surveyor, Council Offices, Beckenham.
,,	27	Blairgowrie, Scotland—Infectious Diseases Hospital		L. & J. Falconer, Architects, Blairgowrie.
,,	28	Crewe—Pavilion at Hospital	Town Council	G. E. Bolshaw, 189 Lord Street, Southport.
,,	28	Isleworth—Vagrant Wards at Workhouse	Brentford Union Guardians	W. Stephens, Clerk, Union Offices, Isleworth, W.
,,	28	London, N.W.—Brick Culvert	Willesden District Council	O. C. Robson, Engineer, Public Offices, Dyne Road, Kilburn, N.W.
,,	28	Upper Edmonton—Lavatory and Alterations to Schools	Strand Union Guardians	A. A. Kekwich, 18–19 Outer Temple, Strand, W.C.
,,	29	Londonderry—Additions, &c., to Infirmary	Infirmary Committee	A. E. Murray, 37 Dawson Street, Dublin.
,,	29	Greenwich—Repairs to Jetty	Borough Council	Borough Surveyor, Town Hall, Greenwich Road, S.E.
,,	30	Llangyfelach, Wales—Additions to School		W. David, 97 Gorse Lane, Swansea.
,,	30	Glasgow—Underground Convenience	Corporation	Office of Public Works, 64 Cochrane Street, Glasgow.
,,	30	Skerries, co. Dublin—Concert Hall, Baths, &c.	Sea Baths & Recreation Co., Ltd.	F. Shaw, Architect, Drogheda.
,,	31	Cork—Rebuilding Premises	Young Men's Association	W. H. Hill & Son, Architect, Cork.
,,	31	Newcastle-on-Tyne—Concrete Car Shed	Tramways Committee	A. E. Le Rossiquol, General Manager, Manors Power Station, Newcastle-upon-Tyne.
Nov.	1	Sudbury, Suffolk—Buildings at Sewage Pumping Station	Drainage Committee	T. W. A. Haywood, Borough Engineer, Town Hall, Sudbury.
,,	1	Didcot—Alterations, &c., to School	School Board	Hoare & Wheeler, 17 Friar Street, Reading.
,,	3	Guildford—Portland Cement, &c.	Town Council	C. G. Mason, Borough Surveyor, Tuns Gate, Guildford.
,,	3	Coseley, near Bilston—Alterations, &c, to School	Sedgley School Board	A. Ramsell, 187 Wolverhampton Street, Dudley.
,,	3	Beaufort, Wales—Classrooms, &c.	Llangattock School Board	H. Waters, Architect, Waengoch, Beaufort.
,,	3	Sheffield—Silica and Fireclay Goods	United Gaslight Co.	J. W. Morrison, Engineer, Commercial Street, Sheffield.
,,	4	Ystradgynlais, Wales—School		P. Williams, Tyr Gorof, Ystradgynlais.
,,	4	London, S.E.—Underground Sanitary Conveniences	Lewisham Borough Council	Surveyor, Town Hall, Catford.
,,	5	Cwmllynfell, Glamorgan—Chapel		Rev. J. Rees Cwmllynfell.
,,	5	Brighton—Alterations to Royal Pavilion	Town Council	F. J. C. May, Borough Engineer, Town Hall Brighton.
,,	5	Leavesden Asylum, near Watford, Herts—Isolation Hospital.	Metropolitan Asylums Board	T. D. Mann, Clerk, Board's Office, Embankment, E.C.
,,	5	North Eastern Railway—Station Buildings, Cottages, &c.	Railway Co.	W. Bell, Company's Architect, Central Station, Newcastle-on-Tyne.
,,	6	Bishop Auckland - Isolation Hospital	Hospital Board	W. Perkins, Architect, Victoria Street, Bishop Auckland.
,,	6	Nash Point, Glamorgan—Fog Signal House, &c.	Corporation of Trinity House	Corderoy, Selby & Corderoy, Quantity Surveyors, 21 Queen Anne's Gate, Westminster, S.W.
,,	15	Bromsgrove, Worcs—Lunatic Asylum	County Council	R. J. Oliver, Clerk, Shirehall, Worcester.
,,	15	Birmingham—Sanitary Projections to School	Aston Union Guardians	C. Whitwell, 23 Temple Row, Birmingham.
No date.		Leeds—Houses, Shop, Alterations to Inn, &c.		F. Mitchell, 9 Upper Fontaine Street, Albion Street, Leeds.
,,		West Loughton—Temporary Hospital	Urban District Council	T. Partington, Clerk, Council Offices, West Loughton.
		ENGINEERING:		
Oct.	24	Culisse, Scotland—Deepening Canal and Ditch		Mr. Gordon, Cullisse.
,,	24	Darlington—Culverts, &c.	Corporation	Borough Surveyor, Town Hall, Darlington.
,,	24	Pentre, Glamorgan—Scavenging	Rhondda Urban District Council	Surveyor, Council Offices, Pentre, R.S.O., Glam.
,,	27	Victoria, British Columbia—Steel Bridge		Agent-General for British Columbia, 819 Salisbury House, London Wall, E.C.
,,	27	Hill End, near St. Albans—Sewage-disposal Works	Asylums Visiting Committee	B. Latham, Civil Engineer, Parliament Mansions, Victoria Street, Westminster, S.W.
,,	27	Johannesburg—Destructor	Municipality	E. W. Carling & Co., St. Dunstan's Bdgs., St. Dunstan's Hills, E.C.
,,	27	Ramsbottom, Lancs—Tanks Reconstruction	Urban District Council	J. Diggle, Hind Hill Street, Heywood.
,,	28	Glasgow—Machinery, &c.	Corporation	Office of Public Works, City Chambers, 64 Cochrane St., Glasgow.
,,	28	Vielsalm to Lierneux, Belgium—Railway	National Co. of Local Railways	Company's Offices, 14 Rue de la Science, Brussels.
,,	28	Batley—Water Cooler	Corporation	Lacey, Clirehugh & Sillar, 78 King Street, Manchester.
,,	28	Padstow, Cornwall—Waterworks	Urban District Council	W. H. Pope, Clerk, Council Offices, Padstow.
,,	28	Broadclyst, Devon—Alterations to Bridges	Devon County Council	H. Michelmore, Clerk, Castle of Exeter.
,,	28	Swindon—Water Main	Corporation	Borough Surveyor, Swindon.
,,	29	Greenwich—Gas Engine	Borough Council	Borough Engineer, Town Hall, Greenwich Road, S.E.
,,	30	Shanghai—Electrical Plant	Municipal Commissioners	Preece & Cardew, 8 Queen Anne's Gate, Westminster.
,,	31	Aston, Birmingham—Condensers for Electricity Station	Urban District Council	R. P. Wilson, 66 Victoria Street, Westminster.
,,	31	Mansfield—Electric Wiring Town Hall	Corporation	E. H. Hewlett, Electric Lighting Station, Birmingham.
,,	31	Southampton—Printing Machine, &c.	Direc.-Gen., Ordnance Survey	Officer in Charge of Stores, Ordnance Survey Office, Southampton.
Nov.	1	Harrogate—Pump, &c.	Corporation	W. Dixon, 14 Albert Street, Harrogate.
,,	1	Sudbury, Suffolk—Pumping Engines, &c.	Drainage Committee	T. W. A. Hayward, Borough Engineer, Town Hall, Sudbury.
,,	3	Sheffield - Coal Breaker, &c.	United Gaslight Co.	J. W. Morrison, Engineer, Commercial Street, Sheffield.
,,	3	Ware, Herts—Borehole and Test Pumping	Rural District Council	Bailey-Denton, Son, Lawford & Symons, Engineers, Palace Chambers, Westminster, S.W.
,,	3	Leyton—Electric Lighting, Heating Apparatus, &c.	School Board	W. Jacques, 2 Fen Court, Fenchurch Street, E.C.
,,	4	Coalville, Leics—Valves, &c.	Urban District Council	J. B. Everard, 6 Millstone Lane, Leicester.
,,	4	Coalville, Leics—Reservoir	Urban District Council	J. B. Everard, 6 Millstone Lane, Leicester.
,,	4	Coalville, Leics - Engines and Boilers	Urban District Council	J. B. Everard, 6 Millstone Lane, Leicester.
,,	4	India Office, S.W.—Dredger		Director-General of Stores, India Office, Whitehall, S.W.
,,	8	Newcastle-upon-Tyne—Engine	Tramways Committee	A. E. Le Rossiquol, General Manager, Manors Power Station, Newcastle-upon-Tyne.
,,	8	Swindon—Pumping Plant	Corporation	Borough Surveyor, Town Hall, Swindon, Wilts.
,,	14	St. Petersburg—Electric Traction on Tram Lines	Stadt Amt (Town Council)	Stadt Amt, St. Petersburg, Russia.
,,	14	Leeds—Aqueduct Tunnel	Corporation	City Engineer, Leeds.
,,	19	Enniscorthy, Ireland—Fuel Economiser		Resident Medical Superintendent, District Asylum, Enniscorthy.
,,	28	Burton-on-Trent—Inclined Retort Plant	Corporation	F. L. Ramsden, Manager, Gas & Electricity Light Works, Burton-upon-Trent.
,,	29	Manchester—Reconstruction of Bridge		City Surveyor, Town Hall, Manchester.
,,	30	Shanghai—Electric Lighting	British Municipal Councils	Office of the Board of Trade, 50 Parliament Street, S.W.
Dec.	2	Adelaide, South Australia—Harbour		Agent-General for South Australia, 1 Crosby Square, London.
,,	13	Madrid—Canal Reservoir		Office of the Ministry of Agriculture, Commerce and Public Works, Madrid.
,,	20	Alexandria, Egypt—Steamer		Inspector of Irrigation, Third Circle, Alexandria.
		FURNITURE:		
Nov.	1	Edinburgh—Furniture	Corporation	R. Morham, City Architect, P.W.O., City Chambers, Edinburgh.
		IRON AND STEEL:		
Oct.	23	Manchester—Iron and Steelwork	Gas Committee	C. Nickson, Superintendent, Gas Dept., Town Hall, Manchester.
,,	25	Harrogate—Cast-iron Pipes	Corporation	E. W. Dixon, 14 Albert Street, Harrogate.
,,	25	Grange-over-Sands—Iron Pipes	Urban District Council	T. Huddleston, Surveyor, Council Offices, Grange-over Sands.
,,	27	Clacton-on-Sea—Cast-iron Pipes, &c.	Urban District Council	S. Francis, Engineer, Town Hall, Clacton-on-Sea.
,,	27	London, S.W.—Stores	London County Council	Clerk to the Council (Stores Branch), 19 Charing Cross Road, W.C.
,,	27	Ashton-under-Lyne—Railing		J. T. Earnshaw, Borough Surveyor, Town Hall, Ashton-under-Lyne.
,,	29	Callao, Peru—Cast-iron Pipes	Corporation	Graham, Row & Co., Liverpool.
Nov.	4	Coalville, Leics—Pipes	Urban District Council	J. B. Everard, 6 Millstone Lane, Leicester.
,,	4	Glasgow—Name and Number Plates	Corporation	T. Nisbet, Master of Works, City Chambers, Glasgow.

COMPLETE LIST OF CONTRACTS OPEN—*continued.*

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDERS MAY BE OBTAINED.
	PAINTING AND PLUMBING:		
Oct. 27	Dublin—Plumbing Repairs to Bath, &c.	Corporation	City Architect, Municipal Buildings, Cork Hill, Dublin.
,, 27	London, S.W.—Gas and Plumbers' Fittings, Oilman's Sundries, Brushes and other Stores.	London County Council	Clerk of the Council (Stores Branch), 19 Charing Cross Road, W.C.
	ROADS AND CARTAGE:		
Oct. 23	Willenhall, Staffs—Road Improvements	Urban District Council	T. E. Fellows, Engineer, Town Hall, Willenhall.
,, 24	Romford—Materials	Urban District Council	C. T. King, Clerk, Council Offices, Romford.
,, 24	Handsworth, Staffs—Paving	Urban District Council	Surveyor, Council Office, Handsworth.
,, 24	London—Supply of Horses and Carts, &c., to the various Parks and Open Spaces.	London County Council	Parks Department, 11 Regent Street, S.W.
,, 25	Dumbarton—Road Metal	Burgh Council	Burgh Surveyor, Municipal Buildings, Dumbarton.
,, 27	Elie, Fife—Laying Bowling Green	———	G. A. Clark, Burgh Chamberlain, Elie.
,, 28	Harrow-on-the-Hill—Making-up	Urban District Council	J. P. Bennetts, Engineer, Council Offices, Harrow-on-the-Hill.
,, 28	North Shields—Paving, &c.	Tynemouth Corporation	J. F. Smillie, Borough Surveyor, North Shields.
,, 29	Greenwich—Paving	Borough Council	Borough Surveyor, Town Hall, Greenwich.
,, 29	Stockton-on-Tees—Flagging, &c.	Rural District Council	W. Burton, Highway Surveyor, Billingham.
,, 29	Withington—Street Works	Urban District Council	A. H. Mountain, Surveyor, Town Hall, West Didsbury.
,, 29	Leytonstone, E.—Making-up Road and Paving Open Spaces at New Infirmary.	West Ham Union Guardians	F. E. Hilleary, Clerk, Union Workhouse, Leytonstone, N.E.
,, 30	Newport, Somerset—Road	———	W. C. Oliver, Architect, Barnstaple.
,, 31	Middleton, Lancs—Paving, &c.	Corporation	Borough Surveyor, Town Hall, Middleton.
Nov. 3	Hastings—Brooms and Brushes	Corporation	P. H. Palmer, Borough Engineer, Town Hall, Hastings.
,, 3	Guildford—Brooms, Brushes, &c.	Town Council	C. G. Mason, Borough Surveyor, Tuns Gate, Guildford.
,, 10	Blaengwynfi—Private Street improvement Works	Glyncorrwg U.D.C.	W. P. Jones, Surveyor, Council Offices, Cymmer, Port Talbot.
,, 11	Llanmartin, Wales—Improving Highway	Magor R.D.C.	I. Thomas, Clerk, Union Offices, Queen's Hill, Newport, Mon.
,, 11	Dartford—Making-up, &c.	Urban District Council	W. Harston, 8 Hythe Street, Dartford.
	SANITARY:		
Oct. 23	Tunbridge Wells—Sewer	Corporation	W. H. Maxwell, Borough Engineer, Tunbridge Wells.
,, 24	Brigg, Lancs—Sewers, &c.	Urban District Council	R. E. W. Berrington, 28 Victoria Street, Westminster, S.W.
,, 24	Cullisse, Scotland—Draining	———	Mr. Gordon, Cullisse.
,, 25	St. Monans, Scotland—Sewers, &c.	———	H. Bruce, 67 Crossgate, Cupar-Fife.
,, 25	Grange-over-Sands—Stoneware Pipes	Urban District Council	T. Huddleston, Surveyor, Council Offices, Grange-over-Sands.
,, 25	Honiton, Devon—Sewers and Outfall Works	Rural District Council	E. G. Warren, Commercial Chambers, Exeter.
,, 27	London, S.W.—Disinfectants, &c.	London County Council	Clerk of the Council (Stores Branch), 19 Charing Cross Road, London, W.C.
,, 27	Hill End, near St. Albans—Sewage-Disposal Works	Asylum Visiting Committee	B. Latham, Parliament Mansions, Victoria Street, Westminster
,, 29	Rotherham—Sewerage Works	Rural District Council	J. Platts, Council's Engineer. High Street, Rotherham.
Nov. 3	Dartmouth—Sewers, &c.	Town Council	A. Smith, Borough Surveyor, Dartmouth.
,, 3	Slough—Sewer	———	J. Baker, 75 High Street, Slough.
,, 3	Guildford—Drain Pipes, &c.	Town Council	C. G. Mason, Borough Surveyor, Tuns Gate, Guildford.
,, 4	Cannock, Staffs—Sewage-Disposal Works	Urban District Council	C. R. Walker, 25 Victoria Street, Westminster.
Dec. 15	Monte Video—Sanitary Works	Government of Uruguay	Uruguay Legation, London.
	TIMBER:		
Oct. 27	London, S.W.—Firewood, Oak Poles and Pests, &c.	London County Council	Clerk of the Council (Stores Branch), 19 Charing Cross Rd., W.C.
,, 29	Leytonstone, N.E.—Preparing, Staining and Polishing 5,000 sq. yds. of Pitch-Pine Flooring at New Infirmary.	West Ham Union Guardians	F. E. Hilleary, Clerk, Union Workhouse, Leytonstone, N.E.
,, 30	London, E.C.—Timber, &c.	London Gen. Omnibus Co., Ltd.	Manager of Coach Factory, 235 Upper Street, Islington, N.

List of Competitions Open.

DATE OF DELIVERY.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Oct. 25	Hamilton, Scotland—Tenements	£15 15s., £10 10s., £5 5s.	W. Pollok & P. M. Kirkpatrick, Town Clerks, Town House, Hamilton.
Nov. 1	Allahabad—Memorial to Queen Victoria	2,000 Rs.	H. N. Wright, Indian Civil Service, Allahabad, India.
,, 29	Ramsgate—Technical Schools and Free Library	£50, £25, £15.	T. G. Taylor, Borough Surveyor, Albion House, Ramsgate.
Dec. 1	Arundel, Sussex—Laying-out Land	£50, £20.	A. Holmes, Town Clerk, Arundel.
,, 1	Chadderton—Free Library	———	G. Taylor, Clerk to U.D.C., Town Hall, Chadderton.
,, 12	Eccles—Laying-out Area for Workmen's Dwellings	£50, £30, £15.	W. H. Hickson, Town Clerk, Town Hall, Eccles.
,, 18	Durban, Natal—Town Hall, Library, Museum, &c.	£500, £300, £200.	W. H. Radford, Albion Chambers, King Street, Nottingham.
,, 31	Ashton-in-Makerfield—Infectious Diseases Hospital	Urban District Council	T. Burgess, Surveyor, Council Offices, Ashton-in-Makerfield.
Jan. 31	Cape Town—University Buildings	£400, £200, £100.	Agent-General for the Cape of Good Hope, London.
,, 31	Hull—Town Hall Extension	£300, £200, £100.	E. Laverack, Town Clerk, Town Hall, Hull.
Feb. 13	Patras, Greece—Church	£400, £160, £80.	Committee for new Church of St. Andrew, Patras, Greece.
No date.	Motherwell, Scotland—Formation and Laying-out of Cemetery	£10, £5, £2 10s.	J. Miller, Inspector of Poor, Parish Council Offices, Motherwell.

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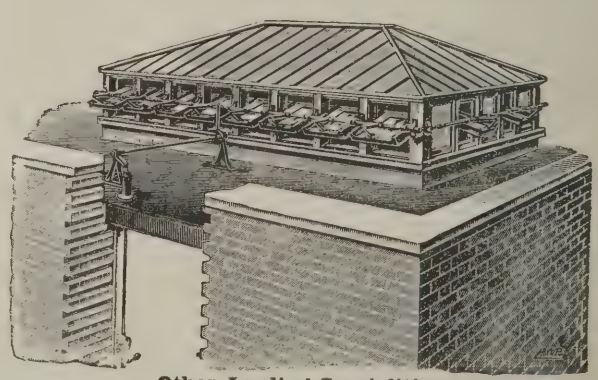
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Engineering Notes.

The Technical Schools, Kingston-on-Thames, have been supplied by Messrs. E. H. Shorland & Brother, of Manchester, with their patent Manchester grates.

Mr. Peter Brotherhood, the mechanical engineer who, by the invention of a new type of steam-engine, and afterwards of a special high-pressure air-compressing pump, greatly assisted in the development of the automobile torpedo died last week in his sixty-fifth year.

The "Mechanical World" Pocket Diary and Year-Book for 1903.—The sixteenth annual edition of this handy little book has just been published. The section on electrical transmission of power has been amplified and many new tables added. The book contains much that will be of considerable use to the architect, although it more especially appeals to the engineer. It is published by Messrs. Emmott & Co., Ltd., New Bridge Street, Manchester, price 6d. nett.

Surveying & Sanitation.

Australian Wood Paving.—The Government of New South Wales has forwarded a supply of hardwood from the Colony to be laid down in one of the busiest thoroughfares in Westminster in juxtaposition to blocks of other kinds of street-paving woods. The intention is to obtain a practical test of the durability of the New South Wales wood when used in the streets of London.

Mr. James Frederick Field, of the firm of Field & Sons, auctioneers and surveyors, of 54, Borough High Street and 52, Chancery Lane, E.C., died last week at the age of fifty-eight years. He was elected president of the Auctioneers' Institute in 1896, and was unanimously chosen to fill the office for a second year. Mr. Field, who was a Fellow of the Surveyors' Institution, was the only surveyor who gave evidence in favour of "betterment" before the Parliamentary Committee. He was one of the valuers under the London County Council and a surveyor to the Board of Trade, and was frequently employed as an expert witness or arbitrator.

Coming Events.

Wednesday, Oct. 22.

CHURCH SANITARY ASSOCIATION.—Annual Meeting at Church House at 3.45 p.m.

AUCTIONEERS' INSTITUTE.—Inaugural Address by Mr. John Hepper at the Medical Examination Hall, Victoria Embankment, 7.45 p.m.

Thursday, Oct. 23.

SOCIETY OF ARCHITECTS.—Annual General Meeting. Election of Officers and Council for Ensuing Session, Presentation of Prize in Students' Competition and Report of Council. 8 p.m.

Friday, Oct. 24.

GLASGOW AND WEST OF SCOTLAND TECHNICAL COLLEGE ARCHITECTURAL CRAFTSMEN'S SOCIETY.—Ordinary Meeting at 204, George Street, Glasgow, at 8 p.m. Mr. James Chalmers, I.A., on "Art as a Teacher."

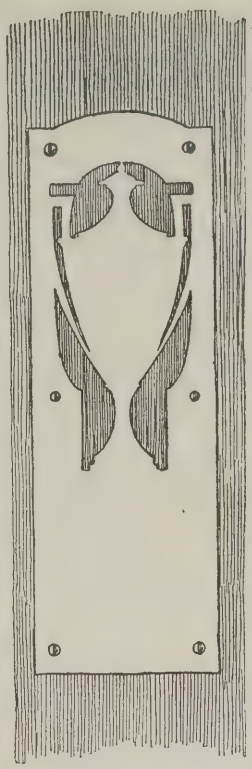
ABERDEEN GRANITE MASONS UNION LITERARY CLASS.—Opening meeting of session.

SANITARY INSTITUTE (Lectures and Demonstrations for Sanitary Officers, Part I.).—Mr. A. Wellesley Harris on "Water," 7 p.m.

Saturday, Oct. 25.

SANITARY INSTITUTE (Lectures and Demonstrations for Sanitary Officers, Part I.).—Inspection and Demonstration at the Southwark and Vauxhall Waterworks, Hampton, at about 2.30 p.m.

THE CRAFT SCHOOL, Globe Road, E.—Mr. H. H. Cunynghame, C.B., on "The Art of Enamelling," 8.30 p.m.



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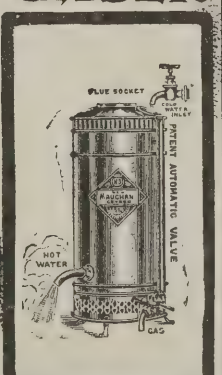
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COMING EVENTS—*cont.*

Monday, Oct. 27.

LONDON INSTITUTION.—Lord Avebury on "The Scenery of England and the Causes to which it is due," 5 p.m.

Tuesday, Oct. 28.

SANITARY INSTITUTE (Lectures and Demonstrations for Sanitary Officers, Part I.).—Mr. H. R. Kenwood, M.B., on "Elementary Statistics," 7 p.m.

Wednesday, Oct. 29.

SANITARY INSTITUTE (Lectures and Demonstrations for Sanitary Officers, Part I.).—Mr. J. Wright Clarke on "Details of Plumbers' Work," 7. p.m. Inspection and Demonstration at L.C.C. Common Lodging-house, Parker Street, Drury Lane, W.C., at 3 p.m.

Thursday, Oct. 30.

SANITARY INSTITUTE (Lectures and Demonstrations for Sanitary Officers, Part I.).—Demonstration of Book-keeping as carried out in a Sanitary Inspector's Office, in the Parkes Museum, at 7 p.m., by Mr. Albert Taylor.

Friday, Oct. 31.

ARCHITECTURAL ASSOCIATION.—Conversazione at the Royal Institute of Painters in Water Colours, at 8 p.m.

SANITARY INSTITUTE (Lectures and Demonstrations for Sanitary Officers, Part I.).—Prof. R. Elsey Smith, A.R.I.B.A., on "Building Materials," 7 p.m.

Saturday, Nov. 1.

BRITISH INSTITUTE OF CERTIFIED CARPENTERS.—Meeting at Carpenters' Hall, London Wall, E.C., at 6 p.m.

GLASGOW AND WEST OF SCOTLAND TECHNICAL COLLEGE SCIENTIFIC SOCIETY.—Mr. W. Benison Hird, B.A., on "Comparison of Alternating and Continuous Currents for different purposes," 7.30 p.m.

Current Market Prices.

FORAGE.

		£	s.	d.	£	s.	d.
Beans	per qr.	1	15	0	2	0	0
Clover, best	per load	4	15	0	5	7	0
Hay, best	do.	4	10	0	5	0	0
Sainfoin mixture	do.	4	10	0	5	2	0
Straw	do.	1	10	0	2	4	0

OILS AND PAINTS.

Castor Oil, French	per cwt.	1	5	9		—	
Colza Oil, English	do.	1	5	6		—	
Copperas	per ton	2	0	0		—	
Lard Oil	per cwt.	2	13	0	2	14	0
Lead, white, ground, carbonate	do.	1	4	10		—	
Do. red	do.	1	0	4½			
Linseed Oil, barrels	do.	1	6	3		—	
Petroleum, American	per gal.	0	0	5¼	0	0	5⅜
Do. Russian	do.	0	0	4¾	0	0	5
Pitch	per barrel	0	7	0		—	
Shellac, orange	per cwt.	5	13	0	5	14	0
Soda, crystals	per ton	3	2	6	3	5	0
Tallow, Home Melt	per cwt.	1	11	0		—	
Tar, Stockholm	per barrel	1	0	0		—	
Turpentine	per cwt.	1	19	0		—	

METALS.

Copper, sheet, strong	per ton	67	0	0		—	
Iron, Staffs., bar	do.	6	10	0	8	10	0
Do. Galvanised Corrugated sheet	do.	11	5	0	11	7	6
Lead, pig, Soft Foreign	do.	10	13	9	10	15	0
Do. do. English common brands	do.	11	0	0		—	
Do. sheet, English 3lb. per sq. ft. and upwards	do.	13	10	0		—	
Do. pipe	do.	14	0	0		—	
Nails, cut clasp, 3in. to 6in.	do.	9	5	0		—	
Do. floor brads	do.	9	0	0		—	
Steel, Staffs., Girders and Angles	do.	5	15	0	6	5	0
Do. do. Mild bars	do.	6	10	0	7	0	0
Tin, Foreign	do.	119	10	0	120	0	0
Do. English ingots	do.	120	0	0	121	0	0
Zinc, sheets, Silesian	do.	24	0	0		—	
Do. do. Vieille Montaigne	do.	24	0	0		—	
Do. Spelter	do.	19	0	0	19	5	0

TIMBER.

SOFT WOODS.

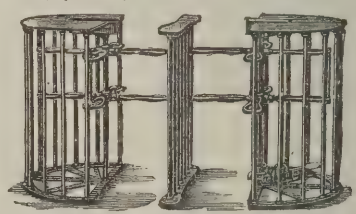
Fir, Dantzic and Memel	per load	1	13	0	3	0	0
Pine, Quebec, Yellow	per load	5	5	0	6	5	0
Do. Pitch	do.	2	17	0	3	13	0
Laths, log, Dantzic	per fath.	4	10	0	5	10	0
Do. Petersburg	per bundle	0	0	8		—	
Deals, Archangel 2nd & 1st	per P.Std.	9	15	0	24	15	0
Do. do. 4th & 3rd	do.	9	0	0	15	15	0
Do. do. unsorted	do.	5	12	6	6	10	0
Do. Riga	do.	6	15	0	12	10	0
Do. Petersburg 1st Yellow	do.	16	5	0		—	
Do. do. 2nd ,,	do.	9	0	0	12	10	0
Do. do. White	do.	7	5	0	12	10	0
Do. Swedish	do.	5	15	0	15	5	0
Do. White Sea	do.	13	5	0	17	5	0
Deals Quebec Pine, 1st,	Per P. Std.	16	5	0	22	5	0
Do. do. 2nd	do.	13	0	0		—	
Do. do. 3rd &c.	do.	9	10	0	11	0	0
Do. Canadian Spruce 1st	do.		—		12	10	0
Do. do. 3rd & 2nd	do.	10	0	0	10	10	0
Do. New Brunswick	do.	7	5	0	8	0	0
Battens, all kinds	do	6	0	0	16	0	0
Flooring Boards 1in. prepared, 1st	per square	0	10	0	0	11	3
Do. 2nd	do	0	8	6	0	10	3
Do. 3rd &c.	do	0	7	3	0	8	9

HARD WOODS.

Ash, Quebec	per load	3	17	6	5	15	0
Birch, Quebec	do.	3	12	6	3	17	6
Box, Turkey	per ton	15	0	0	20	0	0
Cedar, Cuba	per ft. sup.	0	0	3¾	0	0	5
Do. Honduras	do.	0	0	4⅝		—	
Do. Tobasco	do.	0	0	5⅛		—	
Elm, Quebec	per load	0	12	6	5	10	0
Mahogany, Average Price for Cargo, Honduras	per ft. sup.	0	0	5½		—	
Do. African	do.	0	0	4½		—	
Do. St. Domingo	do.	0	0	3¼	0	0	6
Do. Tobasco	do.	0	0	4⅞		—	
Do. Cuba	do.	0	0	4¼	0	0	8 7/20
Oak, Dantzic and Memel	per load	3	5	0	3	15	0
Do. Quebec	do.	4	12	6	7	15	0
Teak, Rangoon, planks	do.	16	0	0	17	10	0
Wainscot, Riga (Baulk)	do.	3	15	0	5	15	0
Walnut, Odessa Crown	do.	3	15	0	5	15	0
Do. American	per ft. cube	0	2	0		—	

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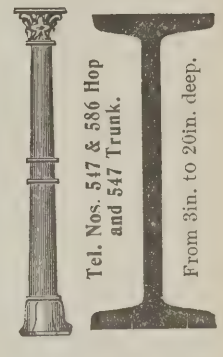
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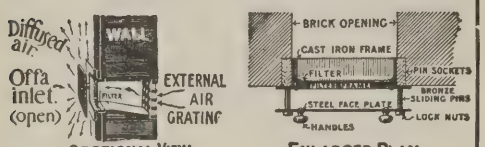
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An Architectural Causerie.

Discoveries about the Campanile. The ruins of the Campanile at Venice have been removed by barges, and the piazza in front of the basilica is completely disencumbered of rubbish. The technical commission nominated to enquire into the cause of the catastrophe has already succeeded in making some curious discoveries. On the ground floor in the caretaker's lodge an economical kitchen—*cucina economica*—(probably a hot-plate or a gas-stove) had been installed in the thickness of the wall; in the centre of the tower the brickwork had been cut away to form cupboards, a recess, and, lastly, a small aquarium. Another face of the tower had been cut into as far as the middle of the thickness of the wall to increase the size of the caretaker's lodge, and in the wall thus reduced in thickness openings had been formed for ventilation. In other words, the commission has been able to verify with its own eyes the prophetic words of the architect Commendatore Giacomo Boni: "The Campanile is in the condition of a man who has had both his legs amputated." It results from these discoveries that the stability of the foundations of the tower is considered to be placed beyond question, and one of the most specious objections to the rebuilding of the Campanile, the palladium of Venice—the alleged insecurity of the foundations—is thus removed. It is a curious coincidence that the present secretary of the municipality of Venice, the Commendatore M. Memmo, who is believed to be the last of his race, is a descendant of the Doge Memmo, in whose reign the foundations of the Campanile are said to have been laid in the year 888.

A Florentine Sketch. The sketch on this page, by Mr. Herbert Raine, is taken from the inner hall on the ground floor of the Palazzo Vecchio at Florence. As one enters this hall there are two low, broad, soffited, semi-arches, one on either side, butting against enormous piers and springing from masonry which projects within the arches in the shape of pedestals, two to each arch. On these pedestals there are four seated lions, and between each couple is a small wall fountain. The architectural effect of the whole is most dignified and unique, and shows a most effective way of dealing with the angular portions of an arch where the headroom is limited.

Erebus, Erebus. On the dismal slope that leads down to the Tunnel of Penance two spirits conversed—one was Heine, the other Swift. Moans and groans proceeded out of the mouth of the Tunnel, terrifying to any human ear, but almost tuneful to the fearful genius of the Dean. As they drew nearer they saw a long line of tormented forms climbing the steep ascent that lay to the left of the Tunnel.



PALAZZO VECCHIO, FLORENCE: A SKETCH IN THE INNER HALL, BY HERBERT RAINE.

"See, see," cried Swift, "these are they which planned and built on earth—but badly. Let us watch them." As each poor soul reached that black entrance a loud voice cried out his name, and thereupon a devil, who sat before a great book, turned over the grimy leaves till on the page he saw all that the man had planned or built. So was he consigned to his fate in that Tunnel of twenty stages, and, exactly as his deserts were, was taken to his appointed place. The worst stood trembling at the first stage and passed moaning through the remainder till, at the last, they worked out their end and emerged into the light that shot in narrow shafts through the opposite end of the Tunnel. "What wretch is he?" cried Heine to a swarthy devil who tended a pot of boiling pitch. "Ha! ha! here is an architect who made much money, but spoiled the land with hideous houses. He was fond of a 'free treatment.' Now he is rather more restrained in feeling, and the string-courses of his life are built in blocks of pitch. He has a friend over there, ha! ha! who used to design hotels. Now you see him always adding room to room, but still a voice cries in his ear 'More, more,' and so, in feverish haste, he goes on with his never-ending plan. Come, I will show you others. There are many kinds and conditions of them. That hollow-eyed man whom you see sprawling on the floor is doomed to work with a bent square and a curved ruler, for it was he who began 'L'Art Nouveau' and made his brain a wilderness. Aye, there are young souls about, assistants forsooth who looked on travellers as if they were dogs; and builders, too, who evaded by-laws. That man, you see him to the right, walks on a place which is always wet with the sniffings of those who took cold in his houses—he omitted his damp-courses, and now he is condemned to pace that slimy path." "That is a strage man, and a strange fancy of his," said Swift, pointing to a form that eyed some object through a glass. "Yes," replied his informant, "he is one of those whose houses were so mean that he is required to look at them through a telescope. They make him writhe, but his fate is for the present to remain glued to that eye-piece. Let us pass. Aye, it is quieter here, for we come towards the end, where the pains are light and the troubles less intense. I am too busy to tell you more: you must guess what all these men are paying penance for: I leave you, for the light is too strong here—it hurts my eyes—and there is much for me to do with pitch and pot." Speaking thus, he went back into the gradual gloom, while Heine and Swift passed onwards to the brightening light where the New Men were.



THE CHAMBER OF DEPUTIES, PARIS. GUY DE GISORS, ARCHITECT.

THE CHAMBER OF DEPUTIES, PARIS.

THE Chamber of Deputies, otherwise called the Palais-Bourbon at Paris, is at present undergoing a process of cleaning and reparation during the recess. The paintings and a portion of the furniture are being renewed, as well as the worn-out carpets, the ceilings which threatened to fall, the desks hacked by the penknives of the Deputies, and the green baize tables of the committee-rooms stained with ink and burned by cigars.

On the left bank of the Seine, between the Invalides and the Rue du Bac, there stood in 1721 the hôtels du Maine, de Torcy, de Seignelay, and at the end of the Rue de Bourgogne the Hôtel d'Humières, which last was destined to become in later times the Chamber of Deputies. The Hotel d'Humières was scarcely finished when it became the property of the Duchess de Bourbon, daughter of Louis XIV. and Madame de Montespan. The duchess quitted the ancestral residence of the Condé family near Luxembourg for the banks of the Seine, in the midst of an agreeable landscape, opposite a bridge proposed to be built, which the city owes to the munificence of a former mayor, the Pont de la Concorde, which, begun in 1789 by the architect, Jean Rodolphe Perronet (1708 94), was not completed until 1790. At the same time that the Hôtel d'Humières, transformed, improved and enlarged by considerable additions, took the name of the Palais-Bourbon, there sprang up at its side the Hôtel de Lassay or de Brancas, now the residence of the President of the Chamber. Count de Lassai was the lover of the Duchess de Bourbon, whose portrait is painted by Saint-Simon in his memoirs in a manner not easily forgotten. He died in 1745, two years after the duchess. After his death his hotel was inhabited by Louis Joseph de Bourbon, Prince de Condé, who subsequently became commander of the regiment of emigrants.

At the revolution these princely dwellings were declared to be the property of the nation, and the Palais "ci-devant Bourbon" became Maison de la Revolution, and by a decree of the year III. of the Republic was assigned to the Council of Five Hundred, a portion being given over to the Central School of Public Works, afterwards the polytechnic. The architect, Guy de Gisors (1762–1835), the grandfather of M. Scellier de Gisors, architect to the Senate, pulled down the palais and built on the site the present Chamber of Deputies, which the Five Hundred took possession of in 1798.

In 1814 at the first restoration of the Bourbons the hotel was restored to the Prince de Condé by Louis XVIII., and the prince resided there until 1818, when he died and was succeeded by his son, the father of the Duke d'Enghien, who died under tragical circumstances at the Château Saint-Leu on August 27th, 1830. Madame de Feuchères lived in the pavilion to the right of the president's lodging. This pavilion has since served at one time as a residence for a questor, at another as a residence for the chief of the staff of the President of the Chamber. It was for some time during the revolution of 1830 inhabited by General Cavaignac.

After the restoration the goverment paid the Condé family a rent of £3,000 a year, and in 1827 purchased the freehold of the portion of which they were tenants for £210,000, and in 1843 acquired the premises fronting on the Quai des Invalides for a further sum of £201,979. On the site of these buildings the Foreign Office was built.

The hall of the Five Hundred becoming dilapidated, the architect Jean de Jolly (1762–1835) was instructed to rebuild it and to provide a temporary building during the rebuilding. This was done; a temporary chamber was constructed in one of the internal courts which became the theatre of some important events, and here Loui Philippe was proclaimed King of the French on August 9th, 1830.

The present chamber, which was completed in 1832, is ornamented with twenty four columns of Cararra marble, and contains works by Delacroix, Pujol, Horace Vernet, Pradier and Rude.

In 1846 the Hôtel de Lassay was enlarged and the gallery constructed between the residence of the President and the Chamber of Deputies. The total cost of the buildings up to the present time is stated to be not less than 60 millions of francs (£2,400,000). By a return made in 1852 the figures were £1,575,119, but that amount has been considerably increased since that date.

NEW BUILDINGS AT OXFORD.

IN the BUILDERS' JOURNAL for November 13th, 1901, some particulars were given of the restoration of the colleges and other works at Oxford. These may now be supplemented by the following extracts from the "Oxford Chronicle," whose annual custom it is to notice the various improvements which have taken place in Oxford during the previous twelve months, or which are in progress.

The University.

The scheme of rebuilding the hall attached to University College has been carried out. In 1895 to 1897 a block of buildings in connection with the hall was erected in Logic Lane, designed in a somewhat domestic style, and built in brick, rough-cast and timber. This block has been extended in the same style so as to connect it with the front block in High Street. This front is built of stone and is of simple design, in harmony with the usual collegiate style. The new portion of the buildings provides fifteen sets of rooms, besides porters' rooms, servants'

quarters, bathrooms and offices with every modern improvement. The rooms are large, several of the sitting-rooms measuring 18ft. by 14ft. and the bedrooms 11ft. by 14ft. They are lighted throughout with electricity, and the staircases and corridors with gas. The architect is Mr. H. W. Moore, and the contractor Mr. Samuel Hutchins, both of Oxford. It was originally proposed to connect the college and the new buildings by means of a subway, but the city claiming the ownership of the subsoil, the college refused to acknowledge this right. As a way out of the difficulty the college suggested a bridge across the intervening space.

The new Buildings being erected by Hertford College

at the corner of New College Street and Catherine Street are about half completed. The foundations were put in by the college, and the remainder of the work is being carried out by Messrs Benfield & Loxley. The building is of stone and is of the usual collegiate character, the roof rising to a height of 50ft. The whole makes provision for twenty-four sets of rooms. It is satisfactory to notice that the college intends to preserve that historic structure known as the Octagon House. This curious building, which stood outside the wicket-gate in the city wall, was a house of charity, in which poor scholars or others arriving at the confines of the city after the gates were closed found shelter. Its true form has been shown by the destruction of the old building which had been built against it, and this has also revealed some handsome carving and gargoyles. It is understood to be the intention of the authorities to restore this remarkable building as nearly as possible to its original form, and it is possible that it may serve as a gateway to the quadrangle, which will be formed should the new buildings be extended at some future date. The new buildings are expected to be ready for occupation at Michaelmas term next year. The architect is Mr. T. G. Jackson, R.A.

The Daubeny Laboratory

in the Botanical Gardens has been extended by the addition of a wing. The original buildings were occupied by Dr. Daubeny, and are now the property of Magdalen College, being fitted up as a botanical library and chemical laboratory for the use of Magdalen students. The old room will probably be turned into a lecture-room and museum, while the lower room in the new building will be reserved principally for research work, and the upper rooms for practical inorganic chemistry. Messrs. Benfield & Loxley are the contractors.

The Eye Hospital.

The new wing of the Oxford Eye Hospital was opened yesterday by the Countess of Jersey. The enlargement has not consisted of the erection of an entirely new wing, but of an addition of an upper storey to the existing east wing. This portion of the building is now as large as its companion west wing. Much expense has been incurred in the enlargement—not merely in the actual building operations but in the furnishing of the new apartments with all the improved appliances which have recently been produced. The new wing comprises a main ward, capable of accommodating fourteen patients, an operating theatre, nurses' apartments, anterooms and lavatories. As a means of approach to this upper storey, an upper corridor has been added to the existing central corridor.

During the past year many street and other improvements have been carried out by the Corporation under the direction of the city engineer.

Other new Buildings.

Mr. Frank Cooper, of "Oxford" marmalade fame, finding his already extensive business so much on the increase, is building a new factory. The building, which is being erected by Messrs. Kingerlee & Sons, under the supervision of Mr. H. Quinton, architect, of Oxford, is situated near the Great Western Station and opposite the North-western. The front elevation is in Bath stone and red rubber bricks.

At the Nazareth House, Cowley Road, important additions have been made, consisting of new schoolrooms and dormitory wing. The buildings are upwards of 100ft. in length and four storeys high, and the material used is local red facing bricks and freestone dressings. Mr. E. Goldie, of Kensington, was the architect, and Mr. J. Wooldridge, of Oxford, the contractor for the whole work.

The large new telescope for the Radcliffe Observatory has been erected during the year in the tower built specially for its reception. The lifting floor erected in the tower is almost unique in England as a convenience for the use of a large telescope.

To the Boys' Higher Grade School in Cowley Road a spacious classroom has been added, and in consequence the other rooms have been more conveniently arranged and the accommodation of the school substantially increased. Mr. David Fisher, of Magdalen Street, carried out the work.

A new schoolroom and dormitory have been added to the convent in Woodstock Road, the contractor being Mr. Wyatt, of St. Giles.

It is proposed to erect shops at the north-east corner of Carfax from designs of Messrs. Davy & Salter, F.R.I.B.A.



THE CHAMBER OF DEPUTIES, PARIS.



VERANDAH, "MOOR CRAG," WINDERMERE. C. F. A. VOYSEY, ARCHITECT.

Bricks and Mortar.

Aphorism for the Week.

Gates of monarchs
Are arch'd so high, that giants may get through.—SHAKESPEARE.

Our Plates. "MOOR CRAG," Windermere, for Mr. J. W. Buckley, is built of local stone, cement rough-cast outside, with door and window dressings and paving in green Westmoreland stone, the roofs being covered with green Westmoreland slates with lead hips and ridges. All the interior joinery is in oak and every room is oak-lined to a height of 6ft. 6in., with plain white plaster above. The contractor was Mr. G. H. Pattinson, of Windermere, and the architect Mr. C. F. A. Voysey, of 23, York Place, Baker Street, W.—St. Bartholomew's Hospital, London, is the most ancient in England, having originated in a priory of the same name founded in 1100 by Rahere, a minstrel of King Henry the Second's court. It was repaired and enlarged when Dick Whittington was Lord Mayor of London, and founded anew, at the dissolution of the religious houses, by Henry the Eighth, 1547. The gateway towards Smithfield, the subject of Mr. Ernest G. Theakston's measured drawings, was built in 1702. Some further particulars will be found on the centre-plate. The great quadrangle of the present hospital was built in 1730-33, after the designs of James Gibbs.

Turning Granite Columns. ARCHITECTS will be interested to learn the limit of size to which it is practicable to turn and polish granite columns in America. In the new Episcopal Cathedral in New York provision is made for eight columns, the shafts of which, of polished granite, are 54ft. long and 6ft. in diameter. "There seems to be no difficulty in getting these shafts as monoliths out of the quarry," says the "American Architect," "but in order to polish them they must be put in a lathe; and after several years' trial the contractor, Mr. John Pierce, has come to the conclusion that it is impracticable with any machinery now in use to support the columns in such a way that they will not break, from their own weight, while being turned. The turning itself presents no great difficulty, as lathes capable of turning a cannon 60ft. long have been for many years in use; but a cannon needs little or no support in the middle while being turned, whereas a granite cylinder 9 diameters long, supported only at the ends, cannot be depended upon to sustain its own weight. If it were possible to rest the middle portion on a support of some kind, the strain would be greatly diminished, but, in the nature of things, it is impracticable to give a stone, which is comparatively rough when put into the lathe, a firm support of this sort. The trustees of the cathedral on being informed of the circumstances have authorised the making of these shafts in two pieces, one 36ft. long and the other 18ft. Only three of the columns are as yet ordered, the intention being to erect them by subscription as memorials of distinguished persons. They cost about 16,000 dols. (£3,200) each, so that they do not form a very expensive monument, and it would be difficult to devise a more effective one for the money."

A Criticism of the New Glass at Westminster. MR. LEWIS F. DAY, writing in the "Manchester Guardian" upon the subject of the new windows just erected in Westminster Abbey at the end of the south transept, says: "Messrs. Burleson & Grylls had not much difficulty in improving upon the gaudy glass erected here in 1847 by Ward & Nixon, and removed to make way for the new windows. The new work stands quite on another and a higher plane of technical and decorative excellence. Messrs. Burleson & Grylls learnt their trade years ago in the studio of Messrs Clayton & Bell, and they have not forgotten it. They have a full knowledge of glass and of its technique, and they are capable figure-draughtsmen. And yet the work is not to be pronounced a success. It may not be their fault at all. The vergers tell you, upon enquiry, that it was designed by Mr. G. F. Bodley, R.A. That, of course, is a polite fiction. No busy and successful architect, even if he were master of the *technique* of glass-painting and of figure-draughtsmanship, could possibly find time in the intervals of his professional practice to design work on a scale of this magnitude. But he would presumably prescribe the lines the design should take. And it is here that he is at fault. . . . They (the architect and the glass-painters) have given us mock-Perpendicular glass in Early English architecture—a gay window in a sombre building. And the early window-openings did not lend themselves to this late Gothic treatment. The lower lights are too squat in shape to allow space for canopy work, and the figures are consequently stunted in proportion, at the same time that their niches seem (to eyes accustomed to old glass) too wide for them. And when it comes to the design of the rose window, the radiating figures stand, perforce, some with their feet, some with their heads towards the hub of the great wheel, with most unfortunate results when the change from one to the other of these undignified positions takes place. . . ."

Damp Walls. EVERY day, remarks a writer in "L'Industrie," one has to deal with newly-built walls which cannot be papered. In fact, the surface of new walls requires a considerable length of time in order to dry. During this period the atmospheric carbonic acid transforms the hydrate of lime into carbonate of lime by elimination of the water. The consequence of this slow method of drying is great loss of time, caused by having to wait before papering the walls. However, numerous endeavours have been made to remedy the question, but in most cases without result. The writer of the article himself made many experiments, and finally succeeded not only in drying newly-built walls but also humid surfaces by coating them with a waterproof solution imperceptible to the eye, which makes it possible immediately to paint or paper the walls This wash is prepared as follows:—Dissolve 5lbs. of pure olein in 5lbs. of benzine, and coat the damp surfaces with the mixture. This solution of oleic acid, owing to its great fluidity and the capillarity of the mortar, sinks deeply into the latter, and together with the hydrated lime in the mortar produces a formation of greasy lime which constitutes a waterproof coat. The proportions of the mixture can, of course, be modified according to circumstances; and, instead of benzine, other solvents of the nature of ether and benzol may be utilised. A variation of this method is the employment of other fatty or resinous acids instead of olein. The resinous acids form with the lime hydrate a resinate of lime which has the same waterproof properties as fat lime. Damp or newly-built walls thus coated may, after almost instantaneous evaporation of the liquid, be papered or painted. As in the case of walls in cellars or tunnels, this process can be also employed successfully to coat cement, terrazzo or mosaic work.

Prince Christian Victor Memorial. AT a meeting held last week of the Royal Albert Institute Committee for the erection of a statue to the memory of Major Prince Christian Victor, King's Royal Rifles, to be placed near the foot of the Hundred Steps leading to Windsor Castle from Thames Street, a model was submitted by Mr. Goscombe John, A.R.A., the sculptor chosen to carry out the work on the death of Mr. Onslow Ford. A model was also submitted by Mr. A. Y. Nutt, M.V.O., architect at Windsor Castle, of the sculptured niche in which the statue is to be placed. The whole cost is being defrayed by private subscriptions. The design has been approved by the Committee. The statue, which will be of bronze, will represent the Prince standing bareheaded, with one foot on a boulder

and both hands resting on the hilt of his sword. Below will be an inscription, and there will be shields right and left, bearing the Prince's coat-of-arms on one side and the badge of his regiment on the other.

A Visit to St. Saviour's, Southwark. The Surrey Archæological Society recently visited St. Saviour's, Southwark, which is considered to be the finest mediæval building in London after Westminster Abbey. Fifteen years have passed since the Society last visited the church, and in the interval the building was most happily restored under the direction of the late Sir Arthur Blomfield, A.R.A. Mr. Philip M. Johnston read a paper describing the building. Beginning with an account, as far as it could be ascertained, of the original church, when it was part of the conventual buildings of the Priory of St. Mary Overie, Mr. Johnston pointed out the still remaining traces of Norman work. The old stone roof of the nave fell in 1469, and was replaced by an oak roof, which gradually fell into decay with the rest of the nave, until, in 1838, the whole was taken down and a nave of the meanest description substituted. This remained until the more adequate and nobler-looking building which has now taken its place was erected. Mr. Johnston referred to the good work done by Gwilt in the early years of the nineteenth century, a time when much of the most deplorable work in our churches was being carried out. It was chiefly to his good offices that the beautiful Lady Chapel, as it is now called, or the retro-choir, had been preserved to us. Mr. Johnston proceeded to point out the leading features of architectural value, and explained what had been done by the late Sir Arthur Blomfield, and how far it carried out the original design of the church. After inspecting the many objects of interest in the church, including the old tombs and the modern stained-glass windows in the nave, which commemorated the most famous of the literary and dramatic geniuses who had been associated with the church and parish, the party reassembled in the Lady Chapel, where Prof. John W. Hales, M.A., F.S.A., of King's College, London, delivered a discourse on Shakespeare's connection with the Bankside, and on the early theatres there.

Mr. Kipling at South Kensington. Probably few people know that a portrait of Mr. Lockwood Kipling, Mr. Rudyard Kipling's father, forms a portion of the exterior decoration of the Victoria and Albert Museum. The fact is that Mr. Kipling did a great deal of decorative work for the then new buildings before he went to India, being associated with Messrs. Townroe, Gamble and others under that able pupil of Alfred Stevens, Godfrey Sykes. The north side of the quadrangle of the museum has a series of panels filled with mosaics representing various politicians, officials and artists associated with the institution going in processions, each personally conducted by a classical lady, to receive the (allegorical) reward of their services. That of Mr. Kipling is in the third panel from the west, and he is on the left of the third group. The completion of the east side of the quadrangle has enabled the final panel of this series to be put in place. It is understood to contain portraits of the later directors of the museum and of representatives of the Science and Art Department and the Board of Education.

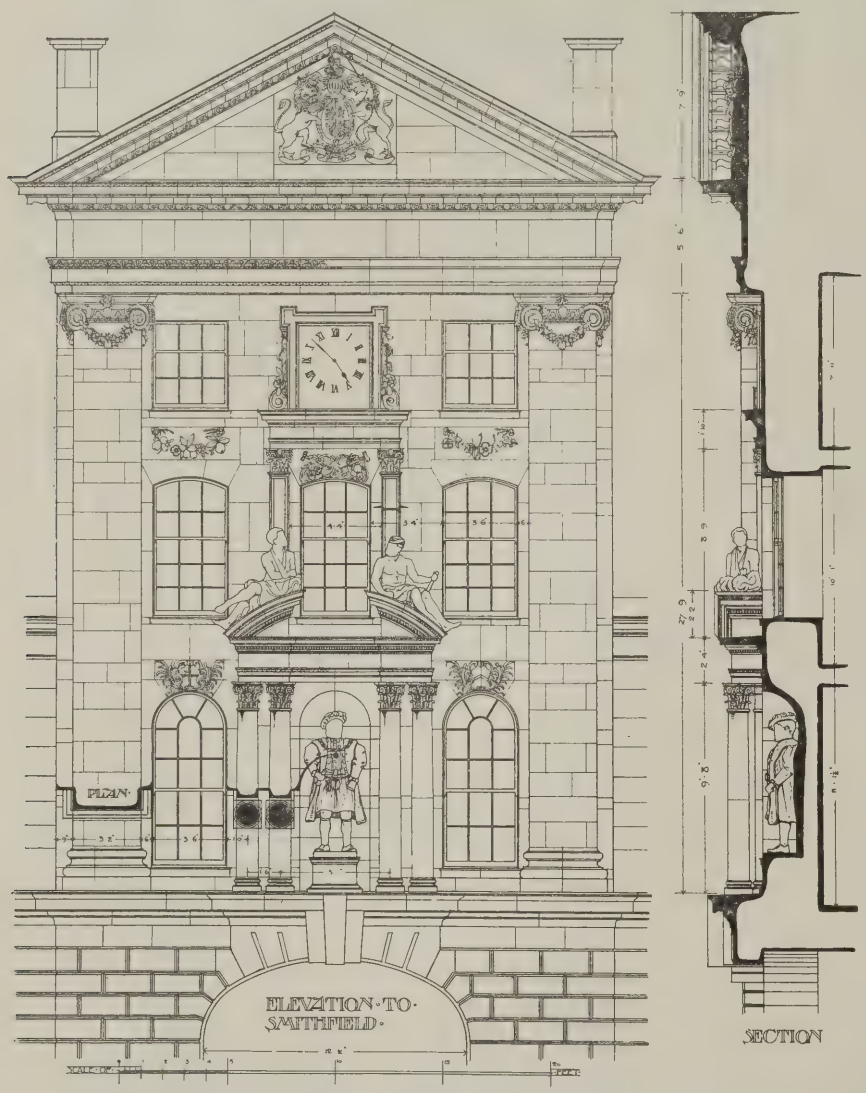
Siamese Art. The art of Siam is little known in this country, though it has given rise to a good deal of speculation among collectors. The porcelain, for instance, has been a subject of much discussion. As a matter of fact, it is not Siamese at all, but Chinese, models of old Siamese origin and decoration having been sent to that country to be copied, and it is the ware so produced that has caused the puzzle. Similarly, metal-work is made in India for the Siamese market from designs furnished in the same way. In the new Royal Museum in Bangkok some of these pattern-



"MOOR CRAG," WINDERMERE. C. F. A. VOYSEY, ARCHITECT.

pieces are now preserved. The only handicrafts flourishing at the present time of purely native origin are basket-work and mother-of-pearl inlay, of which some magnificent specimens are still to be obtained. The temples, however, contain a good deal of native mural painting of considerable interest. They are generally in a state of ruin, but will probably not be allowed to deteriorate much further, as the King has now apportioned an annual sum of money to keep them in repair. Siam, too, is going in for a system of art instruction. At one time or another young members of the aristocracy have been sent to this country to be educated in this subject among others. Mr. W. H. Lord, an old South Kensington student, is now in Bangkok for the purpose of organising the work; and as he also has the direction of the Royal Museum, such native handicrafts as still remain will probably be better looked after in future.

A Greek Temple larger than the Parthenon.—In the course of the excavations he has carried out on the site of the famous Temple of Hera, Samos, the Inspector of Antiquities at Athens found twenty columns and an altar almost untouched. The temple was a colossal one, larger than the Parthenon, but it has been several times stripped of its ornamentation. The excavations are being carried to a depth of 5 mètres, and will be continued for some time under the direction of the Society of Hellenic Archæology.



KING HENRY'S GATEWAY, ST. BARTHOLOMEW'S HOSPITAL, LONDON.
MEASURED AND DRAWN BY ERNEST G. THEAKSTON. (*See p.* 176.)

THE SOCIETY OF ARCHITECTS.

ANNUAL REPORT.

THE annual general meeting of the Society of Architects was held on Thursday last at St. James's Hall, Piccadilly, W., the chair being taken by Mr. G. Gard Pye, vice-president.

The eighteenth annual report of the Council for the session 1901-02 was adopted.

Among the matters on which the Council has taken action are the following:—

Board of Examiners for Science, S.K.—It having been represented to the Council that amongst the Board of Examiners in Science there appeared to be no architect to deal with "Building Construction," though the papers on this subject appeared to relate rather to architectural than engineering construction, the Council took the matter up and received an intimation that the question would be considered.

County Surveyors and Private Practice.—The Council having had before it the question of county surveyors and private practice, the matter was discussed and the following resolution unanimously passed: "That this Society is of opinion that it would be in the best interests of the public if architects, surveyors and engineers holding official appointments were debarred from private practice."

Ancient Lights.—The Council has noted with satisfaction the formation of a Joint Committee of the R.I.B.A. and the Surveyors' Institution to take into consideration the present state of the law with regard to ancient lights, and has intimated to the Joint Committee its willingness to afford them any information or assistance in its power. The matter is engaging the attention of the Council.

Proposed College of Science, Dublin.—A special meeting of the Council was called in June at which it was unanimously resolved "That the sympathy of this Council be tendered to the Royal Institute of the Architects of Ireland in the attitude they have taken on the subject of the proposed selection of an architect by His Majesty's Treasury for the erection of a College of Science in Dublin, and it is the opinion of the Council that for an Irish work of this national character an Irish architect should be solely employed."

Provincial Branches of the Society.—It has not been deemed advisable to take immediate steps to form branches of the Society in the provinces, as has been suggested, but the Council has under consideration the formation of students' sections in various centres with the object of affiliating the younger members of the profession with the Society and as a means of organising the entrance examinations in the provinces.

Examinations to qualify for Membership.—The half-yearly examinations continue to attract many enquiries and an increasing number of candidates. This is largely due to the policy of the Council in extending the examinations into the provinces. A centre has been formed and examinations held in Manchester as well as in London. The Council has appointed as examiners in Section I., Subject *a*, Messrs. R. F. Vallance, F.R.I.B.A., and S. Wyborn, in the places of Messrs. W. A. Bassett-Smith and J. W. Manning, resigned, the vacancy caused by the resignation of Mr. C. E. Gritton, examiner in Section IV., not yet being filled. The syllabus has been revised and materially strengthened.

Local Hon. Secretary for Bombay.—In consequence of the death of Mr. J. Campbell, F.R.I.B.A. the local hon. secretary for Bombay, it became necessary to appoint a successor, and Mr. C. S. Stevens, of that city, has kindly consented to act.

Registration.—The Council continues to be fully alive to the necessity of increased activity in forwarding the statutory education and registration of architects, and has appointed a committee to confer with the Architects' Registration Bill Committee (a body of architects distinct from the Society) with a view to additional co-operation, or, if thought desirable, taking over its work.

Finances.—The balance-sheet to be presented at the November meeting will show the reserve fund to have been largely augmented and the finances administered with due regard to the interests of the members and the efficient working of the Society. Considerably over £500 has been placed to reserve during the session, the fund now amounting to £700 of which £500 has been invested in 2½ per cent. Metropolitan Consolidated Stock, the balance remaining on deposit at the bank.

Register of Employment.—Several posts have been filled through the medium of the register, but it is not made use of to the extent it might be, and members and students are reminded that they have the free use of it and that it is conducted for their benefit.

Generally.—The Council report continued progress in every department of the Society's work.

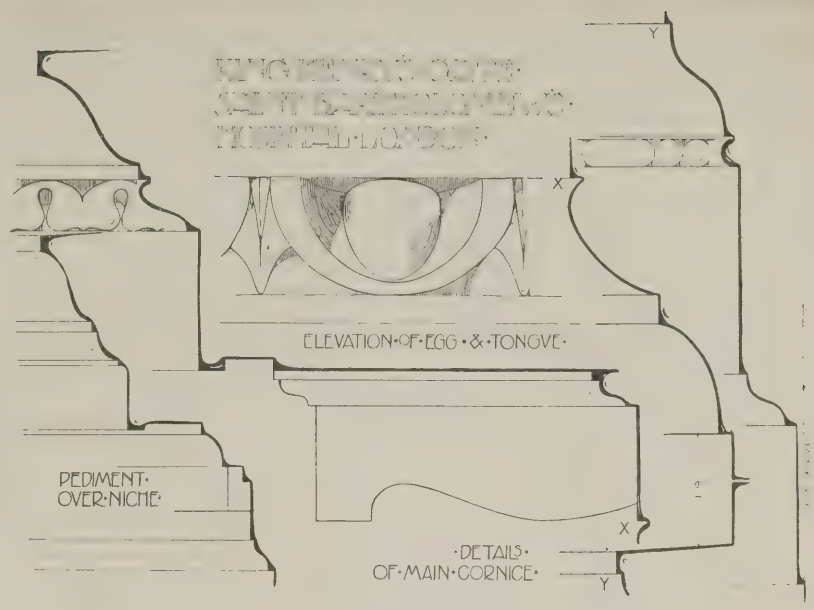
It is the wish and aim of the Council to make the Society of more practical use to

the members, particularly those who, practising at a distance, are unable to keep in personal touch with headquarters. Such members should claim their privileges and use the Society's premises when in town, communicate with the secretary on any matter affecting their interests as members or their position as architects, or retain the services of the Practice Committee for advice on points of practice. The Council is always glad to receive, and if possible act upon, suggestions for extending the scope of the Society and the privileges of membership, but the future of the Society rests not so much with the Council as with the general body of members, for only with their co-operation can full advantage be taken of its continued and increasing prosperity and influence. The membership of the Society is higher than it ever has been at a corresponding period in any year, the total now standing at 597.

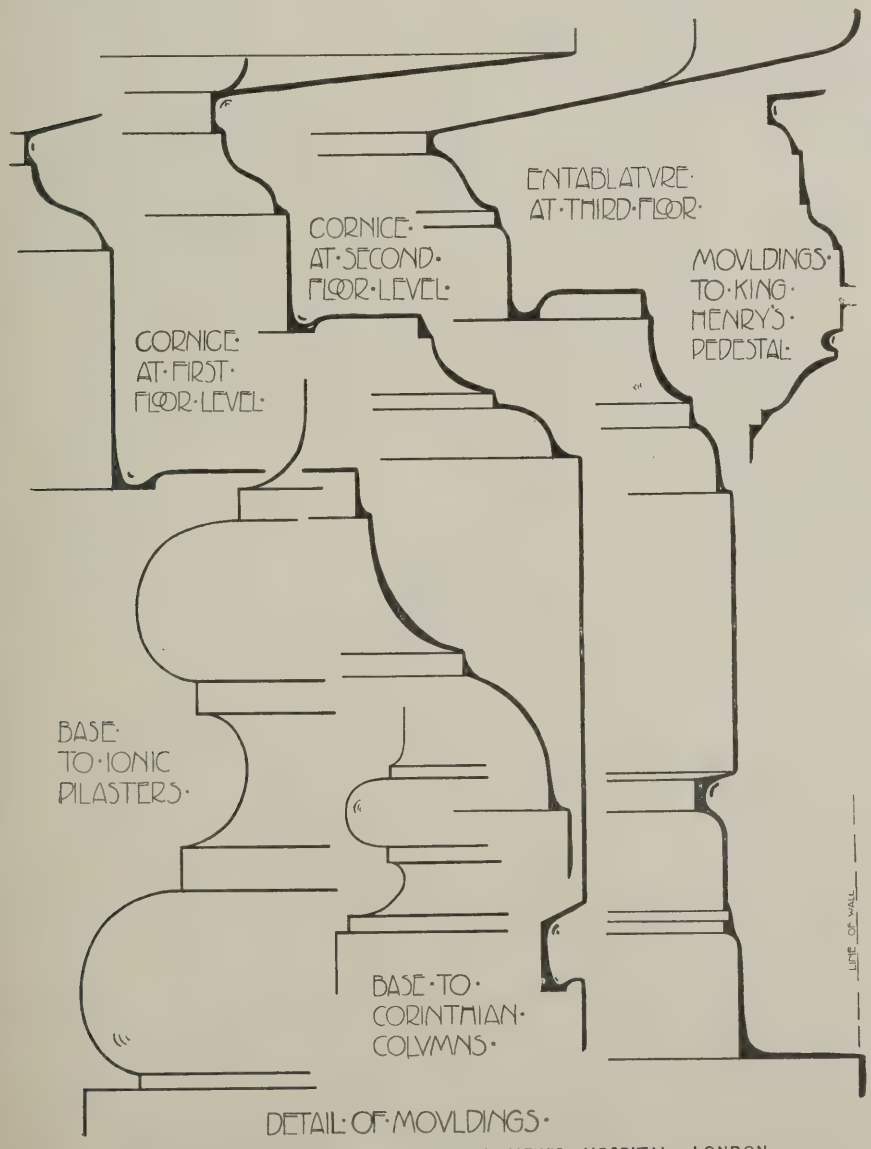
The election of officers resulted as follows:—President, Mr. Silvanus Trevail (Truro); vice-presidents, Mr. Walter W. Thomas (Liverpool) and Mr. G. Gard Pye (London); hon. secretary, Mr. Ellis Marsland (London); hon. corresponding secretary, Mr. W. R. Mallett (London); hon treasurer, Mr. H. G. Quartermain (Merton).

Council, Messrs. R. G. Bare (London); W. R. Bryden, F.R.I.B.A. (Buxton); Charles Caine (Manchester); F. W. Chancellor, M.A., (Chelmsford); W. Cooper (Hastings); J. W. Dyson (Newcastle-on-Tyne); W. L. Grant (Sittingbourne); W. J. Jennings, F.S.I. (Canterbury); H. E. Knight (London); F. W. Macey (London); A. E. Pridmore, F.S.I. (London); and B. R. Tuck (London).

Mr. Frederick Broadbent (Whingate, Leeds) was elected a member of the Society, and Messrs. Noel F. Barwell (London, W.C.) and W. J. Pulford were elected students.



MEASURED AND DRAWN BY ERNEST G. THEAKSTON.



KING HENRY'S GATEWAY, ST. BARTHOLOMEW'S HOSPITAL, LONDON.
MEASURED AND DRAWN BY ERNEST G. THEAKSTON.

Surveying & Sanitation.

The Sanitary Work and Drainage at Messrs. Gooch's new Premises in the Brompton Road, S.W., is being carried out by Messrs. George Jennings, Ltd., under the architects, Messrs. Ford, Son and Burrows. The firm is also executing the sanitary work, drainage, &c., at the Bank of England's new premises for the National Debt offices in Old Jewry and Princes Street, City. Mr. A. C. Blomfield is the architect.

A Great Sewage Engineer.—James Hobrecht, who has just lately died, was one of the most famous of modern engineers and the author of the Berlin sewerage system, in many respects the best ever devised for a great city. More than forty years ago the municipal government of Berlin sent an engineer Commissioner to England and France to study the most improved drainage systems of inland cities, with a view to their application to the needs of Berlin, and with this Commissioner was sent James Hobrecht, then a young architect, as assistant. Hobrecht was a skilful draughtsman, and his sketches served, after the return of the party, to illustrate the report of the Commissioner on the "Drainage of Berlin." The Commissioner, Wiebe, was, as a result of his investigations, charged with the preparation of a plan for the sewerage of the city; and, according to the practice then in vogue, he drew up a scheme by which the little River Spree was made to receive all the drainage of what, even then, was a city of 550,000 inhabitants. Hobrecht, more far-seeing, appreciated the difficulties which would result from loading a little fresh-water stream, far from the sea, with the sewage of a great and growing city, and made up his mind that the only successful method of disposal must be sought in some form of irrigation, for which the flat, sandy plain surrounding the city afforded certain advantages. Although Milan and Edinburgh had practised sewage irrigation on a small scale for some years, no great city had yet attempted it; and all Hobrecht's enthusiasm and force of character were required to persuade the Berlin authorities of its practicability. The plan of Wiebe for pouring a flood of sewage into the Spree was, however, set aside in the meanwhile, and it was finally decided to adopt in general the project that Hobrecht advocated. Fortunately, this project was a comprehensive one; and although Berlin has now nearly 2,000,000 inhabitants, and certain details of the system

have been modified in extending it, the irrigation-fields still dispose of the drainage satisfactorily. The architects, who always considered Hobrecht as one of themselves, although his work was rather engineering than architectural, made him a Director of the Berlin Architectural Society. After his great work at Berlin was complete, he was immediately called to carry out similar undertakings elsewhere, and Moscow, Tokio, Cairo and Alexandria, besides Stettin and Darmstadt, owe to him their drainage systems.

The Oiled Road in Wet Weather.—The experiment with the oiled road at Farnborough was mentioned last week at the meeting of the Farnham Rural Council. The surveyor stated that the experiment was satisfactory while the dry weather prevailed, but under wet conditions the road was in a very bad state. Indeed, it has been described as a mass of slimy mud, the mixture of water and oil producing a vile compound.

Enquiries Answered.

The services of a large staff of experts are at the disposal of readers who require information on architectural, constructional or legal matters. Questions should in all cases be addressed to the Editor. The querist's name and address must always be given, not necessarily for publication.

Open-air Pulpits.

IPSWICH.—J. M. writes: "A Wesleyan church in course of erection at Ipswich, from designs of Messrs. Eade & Johns, has an external pulpit. I am unacquainted with any other example of a pulpit in this position in a Nonconformist place of worship in this country, and should be glad if you could refer me to any examples or illustrations of such pulpits. I believe this feature is not unusual in our modern Established churches, and also in mediæval churches in this country."

You are probably right in your assumption that no other dissenting place of worship in the United Kingdom has an external pulpit. The best known, and indeed the only, example of the kind in London—until quite recently—is at St. Mary's New Church, Whitechapel, E. Now, however, one has been placed outside St. James's Church, Piccadilly, W.; indeed, it was first used only a few weeks ago. The first example of an old stone pulpit in England is that which is generally known as "the Reader's Pulpit" at Shrewsbury Abbey. This occupies its original site (now a coal-yard), but was originally the refectory rostrum, and thus within the abbey. It dates from towards the end of the reign of Edward III., *i.e.*, 1350-1360. It is a most exquisite fragment of fourteenth-century architecture, but was probably only treated as it is at present, an external pulpit, by the destruction of the roof and other portions of the surrounding buildings. A good example of an external pulpit may be seen in the first court of Magdalen College, Oxford. History says Archbishop Laud preached therein. It formed a portion of the Hospital of St. John, which formerly stood upon the site of the college in question. Some portions of the building were spared and incorporated by Waynflete when he built the present college (1473-1481). One might mention many external pulpits abroad. I saw a fine one quite recently, having a most elaborate groined and spired canopy above it, in the church of Notre Dame at Vitré, an old walled town situated upon the River Vilaine in a picturesque part of the Department of Ille-et-Vilaine in France; and there is a similar one, although not quite so ornate, on the north side of the Cathedral of Notre Dame at St. Lô, in Normandy. At Aschaffenberg, near the forest of Spessert in Germany, an external pulpit may be seen at the Minster church. There a distinctly German stone parapet of pierced geometrical open tracery runs around the churchyard at some height above the ground, and is made to project, at one corner, upon a semicircular corbel, thus forming a commanding pulpit. The same sort of treatment may be seen at Bamberg in Bavaria. At Schwäbisch-Gmünd, Würtemberg, there are a couple of chapels, built one above the other, or rather excavated out of the actual rock itself, the lower one being a kind of grotto. The upper, however, is vaulted (probably fifteenth century). Level with this second chapel is an external octagonal stone pulpit carried up from the ground by a circular column, resting in turn upon an octagonal base. Above the carved capital that surmounts this tall column the base, carrying the actual pulpit, coves out. The pulpit has upon each cant a recessed panel containing a figure. It has a projecting sounding-board, which, if I remember correctly, is of wood. Another instance of an external pulpit in Germany is at Hedingsfeld, near Würzberg, also in Bavaria. A projecting external pulpit occurs in the north wall of the choir at Vienna Cathedral from which it is recorded St John Capristan preached his crusade against the Turks in A.D. 1451. Beside external pulpits to churches and cathedrals, pulpits in cemeteries are to be seen in Germany. A well-known example may be mentioned at Mainbernheim, in Bavaria, wherein, in the cloistered cemetery, is a tall isolated stone pulpit of somewhat debased classical design, to which access is gained by winding stone steps. It is crowned by an ogee-outlined roof surmounted by a vane. Going for a moment, in conclusion, from external stone pulpits to internal oak ones, that at Fulbourne, a village not far from Cambridge, lays claim to being the oldest in the kingdom. It apparently dates from about A.D. 1350. At Mellor Church, Derbyshire, is another ancient pulpit, which—with, I think, much less reason—also claims priority on the score of antiquity. The body, which is a polygon, is hewn out of a solid oak butt and has tracery panels carved therein upon five of its sides. This portion is said to be early fourteenth-century work. The cornice and base are Jacobean, or later.

HARRY HEMS.

Retaining Bills of Quantities.

ROCHDALE.—J. P. writes: "Is it the custom of the unsuccessful builders to keep the bills of quantities supplied to them for the purpose of tendering?"

Yes, they are allowed to keep them.

The Letters "M.R.I.A I."

LONDONDERRY.—O. R. writes: "What do the letters 'M.R.I.A.' stand for? Kindly give the name and address of the secretary of the Architectural Association of Ireland."

The letters "M.R.I.A.I." signify Member of the Royal Institute of the Architects of Ireland. The honorary secretaries of the Architectural Association of Ireland are Messrs. George F. Beckett and A. G. C. Millar, and their address is 22, Clare Street, Dublin.

Mahogany Doors, &c.

LONDON, W.C.—H. E. W. writes: "(1) Are 'polished mahogany doors' usually made of Honduras mahogany framing with the panels only of Spanish mahogany, if nothing is specified to the contrary? (2) Would such a combination be satisfactory if the doors were left unpolished? (3) What is the best economical form of pugging to use between joists to deaden the sound over a billiard-room and prevent heat and cooking smells being noticeable in a room over a kitchen? (4) What is the best method of filling in between the studs of a partition to make it solid in a case where brick nogging would be too heavy for the joists supporting it?"

(1) Experts contend that there is no Spanish mahogany to be obtained nowadays. Honduras is usually used. (2) Yes. (3) Slag-wood. (4) Ditto.

Engineering Notes.

Electric Trams at Colchester on the overhead principle are to be built for the Council at an outlay of nearly £70,000.

The Baptist Schools, East Finchley, have been fitted with the latest improved hot-water heating apparatus by Messrs. John King, Ltd., engineers, of Liverpool.

The City of Sheffield Hospital, Lodge Moor, has been supplied by Messrs. E. H. Shorland & Brother, of Manchester, with their double-fronted patent Manchester stoves in glazed faïence and under-bed ventilators.

Rebuilding a Glasgow Bridge.—Auldhouse Bridge, Pollokshaws, is to be rebuilt according to plans prepared by the district road surveyor and the burgh surveyor. The cost of the work, including widening the approaches, is estimated at £3,359

A Consulting Engineer's Affairs.—The public examination of Frederick H. Bowman, consulting engineer, of 30, Victoria Street, S.W., was held last week. His failure was due to his losses in connection with the Higher Antley Brick and Tile Co., Ltd., of which he was chairman until the company went into liquidation in or about April, 1901.

Electric Lighting Profits at Leyton.—The Leyton Urban District Council is announced as having made a profit on its electric light supply station during the past six months of £700., according to a statement just made by the council's electrical engineer, Mr. F. H. Lewis, A.I.E.E. Whereas in 1897—the year in which the station was inaugurated—there were only 2,982 lamps connected with the system, and 28,591 units sold in the twelvemonth, at present there are 40,000 lamps connected, and the financial year now closed saw a total of 811,141 units sold.

Electrifying the Liverpool and Southport Line.—This was decided upon last week by the directors of the Lancashire and Yorkshire Railway Co. The section is about 18½ miles long, and carries an enormous residential traffic. It is anticipated the new trains will be running in about nine months. If this be done the Liverpool and Southport Railway will be the first main line in this country to be converted to the new system. The line will be worked on the three-rail system, the generating station being midway between Liverpool and Southport. The time to be taken for the journey between Liverpool and Southport, including about ten stoppages, will be half an hour.

Masters and Men.

The Government and the Penrhyn Quarry Dispute.—In the House of Commons last week Mr. Field asked the President of the Board of Trade whether he would follow the course adopted by President Roosevelt respecting the coal strike in America in the case of the Penrhyn Quarry dispute. Mr. G. Balfour said the circumstances in the case of the Penrhyn Quarry dispute were by no means similar to those in America, and he saw no prospect that any official intervention would tend to promote a settlement.

THE ADELPHI TERRACE.

IN a letter to the "Times" an F.R.I.B.A. says: "Surely it ought to be borne in mind that the Adelphi is a site of very considerable historic and architectural interest, not to be lightly swept away. It was the scheme of a very remarkable man, Robert Adam, one of the few architects who had sufficient personal power and ability to almost create a style of his own, and not only to impose his taste upon his own generation, but to create a school of classic detail which it has been thought worth while to revive, with much admiration and a diligent cult, in the present generation. The Adelphi streets and buildings, called after the names of himself and his brothers, were practically a kind of monument of his success. Those houses are not only thus connected with the name and genius of an eminent Englishman (or, rather, Scotchman), they are full of beautiful detail in chimney-pieces, ceilings, &c., not to speak of the historic house of the Society of Arts, which contains, among other things, the earliest modern attempt at monumental mural decoration in this country by Burke's friend Barry, bad from the point of view of the present day, but historically interesting; and architecturally the interior of the house is really valuable. All this the London County Council, which ought to set the example of respect for architectural memorials in London, coolly talk of demolishing, as if it were merely a collection of warehouses."

A report of the London County Council's meeting will be found on p. 182 of this issue; those who are not familiar with the Committee's recommendations in regard to this Terrace might refer to p. 163 of the BUILDERS' JOURNAL for last week.

GOTHIC CONSTRUCTION.

A Lecture by Mr. Arnold Mitchell.

MR. ARNOLD MITCHELL, F.R.I.B.A., delivered a lecture on "Some Interests of Mediæval Architecture" before the Architectural Association of Ireland last week. He dealt with the characteristics of the earlier and middle Gothic construction and ornament, and pointed out that the buttress and pinnacle were directly the outcome of the arcuated system of construction, which was the essence of Gothic work. He described the method by which the builders of olden time obtained the effects which they sought—the use of small stones (because these were carried up the scaffolds on men's backs, the time of weight-lifting machinery not yet having arrived), the making of this compulsory use of small stones a means for good effect, the recessing of arches in thick walls, and consequent beautiful effect of light and shade. The lecturer then went on to point out several instances in which the thoughtfulness of the mediæval builders was very evident—the raising of the bases of columns to the inner arcade in the triforium at Westminster and elsewhere, and the carving of the round arched spaces over doorheads, where, as occurs in many places, the door proper is covered by the lintel, while there is a semicircular arch over, projecting beyond this out to the general face of the wall. He drew attention to the great difficulty of designing figure-carving in such a way as to properly fill a space like this, and the still greater difficulty of doing so when of necessity a number of horizontal and vertical stone joints crossed the design; and pointed out how successfully these difficulties had been overcome in the instances shown on the screen. It was particularly noticed how the wings and draperies of the figures had been disposed to suit the joints, with the very best effect. The lecturer showed and described many examples of carving to bring out the fact that all the old ornament had its own peculiar meaning and interest. This was emphasized in a photograph showing a number of heads, forming stops to label mouldings in a nave arcade, where it seemed probable that these heads were likenesses of the various monks who took part in the work of building the church. The lecturer also drew attention to the possibility of obtaining a very rich and beautiful effect by mouldings alone, without the assistance of sculptural decoration; he instanced this by a reference to Salisbury Cathedral, where the only occurrences of carving—as apart from moulding—are in the brackets carrying the ribs of the nave vault. He closed with a reference to the principle which actuated mediæval builders in the latter days in their carving—that they did not actually copy natural forms, but used them as a motive and suggestion for their work, and suited the refinement and character of the work to the nature of their material.



ADELPHI TERRACE LONDON, LOOKING EAST. ROBERT ADAM, ARCHITECT. [*Photo: E. Dockree.*

A Large Consumption Hospital at Beelitz near Berlin, has just been completed at a cost of nearly £450,000. The hospital, which is intended exclusively for the working classes, has both male and female divisions, and is believed to be the largest consumption hospital and most perfectly equipped in the world. Nearly £60,000 annually will be required to keep it up. It will accommodate 600 patients. The buildings are surrounded by extensive pine woods.

New Patents.

These patents are open to opposition until December 1st.

1901.—Cutting Large Holes in Wood.—18,913. J. DAVIDSON, 10, Gladstone Street, and J. DAVIDSON, 18, Annie Street; both of Sunderland. The device consists of a barrel with a screw at its base for fixing it to the work, and an arm which rotates around this barrel with cutters at its outer end for forming the hole.

Wood Flooring.—20,287. J. WEHINGER, Dornbirn, Vararlberg, Austria. This invention relates to a machine for making wood mosaic flooring in which the blocks are linked together by wires. The wire is threaded through the blocks after the manner of weaving.

Door Top Hinges.—22,946. J. H. CARTLAND, Constitution Hill, Birmingham. The hinge is of the type having a pivot fixed to the underside of the door frame, fitting into a bearing screwed to the top of the door. This hinge is subject to excessive wear, owing to the great difficulty of lubricating it. To remedy the defect, the bearing according to this invention has a groove on its upper surface leading into the pivot hole, into which the oil may thus be easily run.

Hot-Water Heating Apparatus.—24,605. W. B. TAYLOR, 11, Waterville Terrace, North Shields. The boiler, which is heated by gas, consists of two domed-shaped shells, the coil within them being packed with asbestos blocks to economise heat.

1902.—Parallel Rulers, Protractors, &c.—679. V. S. HOWARD, Merivale, Beckenham, Kent. The ruler has serrated rollers, but it can be moved sideways as well as up and down. It is also possible to raise the protractor clear of the paper when desired.

Sink Supports.—17,468. M. J. ADAMS, 72, Park Lane, Leeds. The bracket support has the waste passing through it into the leg, which is connected with the outlet pipe. An inspection eye is provided.

The following specifications were published on Thursday last, and are open to opposition until December 8th. A summary of the more important of them will be given next week. The name in italics is that of the communicator of the invention.

1901.—17,581, LOWE, sewage filters. 19,474, CROIZIER & THOMINE, artificial stone. 20,403, SWALLOW, elbow and other fittings for pipes. 21,220, HARRISON, window fastener. 21,850, OSMENT, apparatus for finishing off the edges of doors, sashes, &c. 21,898, LAWSON, cramps. 22,012, LANDER AND SIMPLEX STEEL CONDUIT CO., LTD., fittings for conduit systems of electric wiring. 22,288, WALSH, temporarily fixing together grates and chimney-pieces in showrooms. 22,435, WAIT, apparatus for operating fanlights, &c. 22,732, GALLEY, door bolt and check. 22,735, COGHLIN, tie-plates. 22,960, WINTERFLOOD, valve attachment for geysers. 23,201, SHONE & AULT, self-closing valves. 23,236, PERRY, slide-rules. 23,391, BICKFORD, valves. 23,907, MACAULAY, combined wood and metal channels for sewage. 23,962, BURGHARDT, HALL & JONES, tiles, plates or slabs for walls, ceilings, &c. 24,079, BINNS, SPEIGHT AND BINNS & SPEIGHT, LTD., hot-water and steam heating apparatus boilers. 24,194, WAINWRIGHT, closet seats.

1902.—1,461, KRUSE, scaffolding. 5,541, FIRTH, removal of paint from metallic surfaces. 6,605, LAKE (*Bardsley*), spring hinges. 6,936, YOUNG, valve seats. 11,716, NEWNS & STEVENSON, pipe wrenches. 12,788, KAYSSER, sterilizing drinking water. 13,710, PARSON, grate-bar. 14,527, TRAUTMANN, smoke-consuming devices for furnaces and other fire-grates. 15,785, MAXWELL, pulverizing mills. 17,493, JACOBY, valves. 18,194, JONES, taps. 18,775, SOBORSKI, apparatus for applying paint to floors, &c.

Builders' Notes.

The new Overcliff Drive at Bournemouth which has been constructed by the Corporation on the west cliff, at a cost of £10,000, was formally opened last week. The drive is over a mile and a half in length.

Guards Around Scaffolding.—In returning a verdict of "Accidental Death" on a bricklayer who was killed by falling off a scaffold on a building in Bunhill Row, E.C., the jury expressed the opinion last week that a guard should be placed around scaffolding.

Buildings Collapse in Sunderland.—Whilst Corporation workmen were demolishing several old houses at Drury Lane, Sunderland, one day last week a stretch of buildings comprising three houses collapsed, the outer wall and roof falling into the street. Two workmen were injured.

The Columbian Fireproofing Co.: New Works in London.—Mr. L. V. Childs, chief engineer to the Columbian Fireproofing Co., who has been in London for the past three years in charge of the company's business here, is now at Pittsburgh inspecting machinery and equipment for a steel construction plant which the Columbian company proposes to erect at St. John's Wood, N.W., where two acres of ground have been acquired, and where a shop is being erected that will give employment to sixty men. The Columbian company intends to take up the structural steel business in England as well as fireproofing floors. The steel will be bought in the best markets (American if possible) and will be made into shapes for building purposes at the new works.

Fire Test with a Warehouse Floor.—A full-sized oak warehouse floor was subjected to a fire test last week at the testing station of the British Fire Prevention Committee, the object being to test its resistance against a severe fire of two hours' duration whilst loaded to the extent of 2 cwt. per sq. ft., the actual flooring only being 2½in. thick. The result was that while the fire did not break through the floor for a considerable time, it penetrated at several points towards the end of the test, and a considerable portion of the planking was entirely burnt away. The test was one of considerable importance for comparisons with tests with Colonial hardwoods, from which a greater resistance is obtainable, as also with the various kinds of composite fire-resisting floor in which the ironwork is unprotected with the result that expansion brings about collapse. An official report on the test will be published in due course.

London County Council.—At last week's meeting of the London County Council Mr. Beachcroft moved that the recommendation of the Adelphi site for the proposed county hall be referred back with an instruction to the Committee to report at what cost certain property in Spring Gardens could be acquired: but this proposal was defeated. Mr. Cohen then moved "That, before coming to a decision on the Adelphi site, the Committee be instructed to report on the advantages of a site south of the Thames, adjacent to Westminster Bridge." This proposal was also defeated. A division was taken on the recommendation of the Committee, 50 voting for it and 50 against it. After some discussion the chairman said he must accept the division list as handed to him, but a note could be added in the minutes recording the fact that Mr. Cousins tendered his vote and it was not accepted.—Replying to Mr. Beachcroft, Dr. Cooper said the Council had no power to spend money on investigating the atmospheric conditions of the tube railways, but they had recommended the Parliamentary Committee to deal with the subject when dealing with Tube Railway Bills.—In answer to a question by Mr. Sankey, Mr. Piggott said it was a fact that Buccleuch House, Richmond, the residence of Sir Whittaker Ellis, was for sale, and if the site were built upon it would destroy the view from Richmond Hill. Sir Whittaker Ellis, however, was under a covenant not to build. On the opposite side of the river was Cambridge Terrace Gardens, and Sir Whittaker Ellis promised, when the Marble Hill estate was being acquired, that these gardens should not be further built upon.

OUR IGNORANCE OF ROMAN ARCHITECTURE.

WRITING to the "Times" in reference to the British School at Rome, Professor Aitchison, R.A., says:—This School was undoubtedly started for the help of every student of the Latin Classics, of classic and mediæval archæology and of classic topography, as well as of Roman architecture; and considering that, next to poetry, architecture is the most important fine art, I think a due proportion of the available time should be devoted to the architecture.

With the exception of Taylor and Crecy's "Architectural Antiquities of Rome," I know of no English publication devoted to Roman architecture, except the studies of it that were made and published by the Italian Renaissance architects and translated into English, although there is the greatest dearth of information on the uses to which many parts of buildings were put and as to the dates at which certain characteristic forms and methods of building first came into use—*i.e*, the conversion of the Greek orders into the Roman. The learned M. Auguste Choisy is, as far as I know, the only modern author who has devoted himself to the methods of construction among the Romans, and we badly want to know from what people the Romans learnt the art of building in concrete. The ages of many buildings are unknown and are not by any means easy to be got at, for mostly the first dedicator of the building had his name inscribed on it, and not the last restorer, and most of the aqueducts are of an unknown age; for example, Agrippa had his name inscribed on the frieze of the Pantheon, although the one we have is believed by M. Chedanne to have been built at the expense of Hadrian, and the architects were not even named. The poets were more lucky, for Augustus did not put his name to the poems of Virgil and Horace . . . .

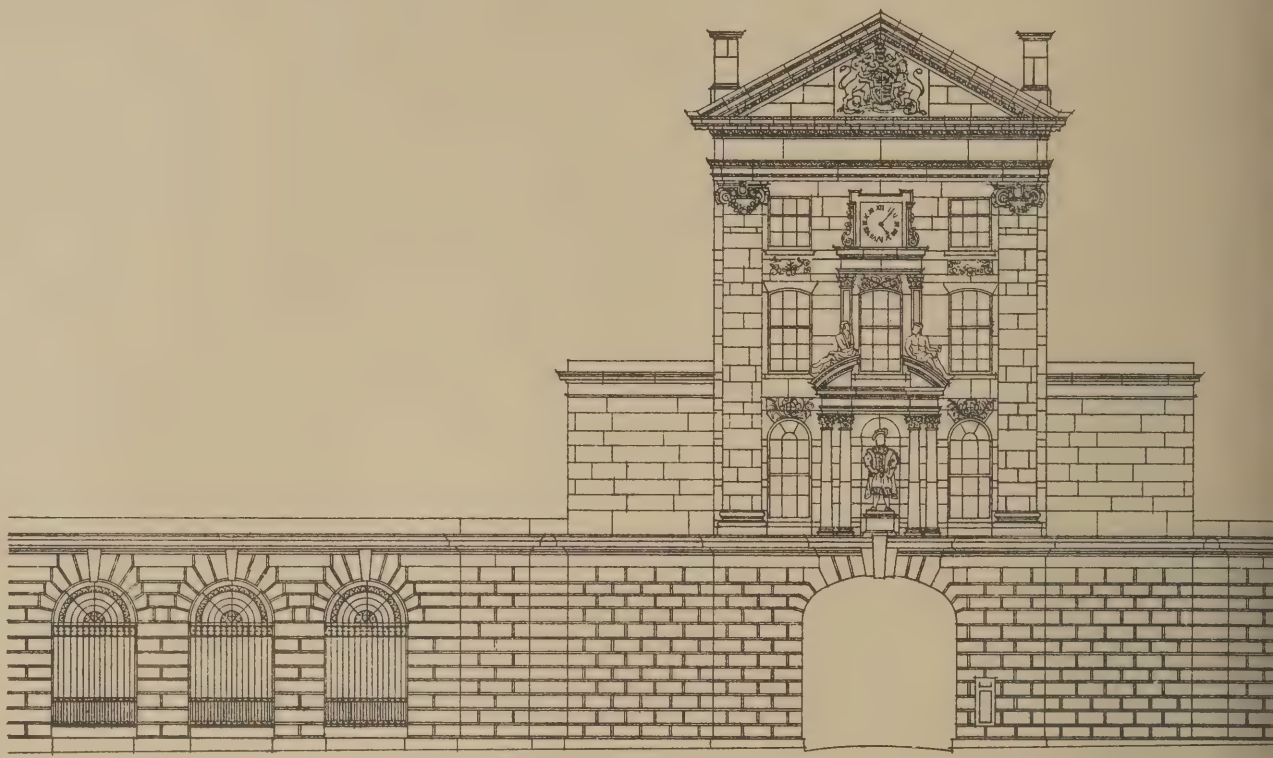
Your contributor says, "Not only on the artistic side has Rome the superiority." On this question he does not appear to be well informed, for even taking the inside of the Pantheon, which is by far the finest of any Roman structure at Rome, it is not to be compared with the perfection of Athenian architecture at its best, which has hitherto been unrivalled in the world, and is the highest expression of architectural art that we possess.

OUR NEW COMPETITION.

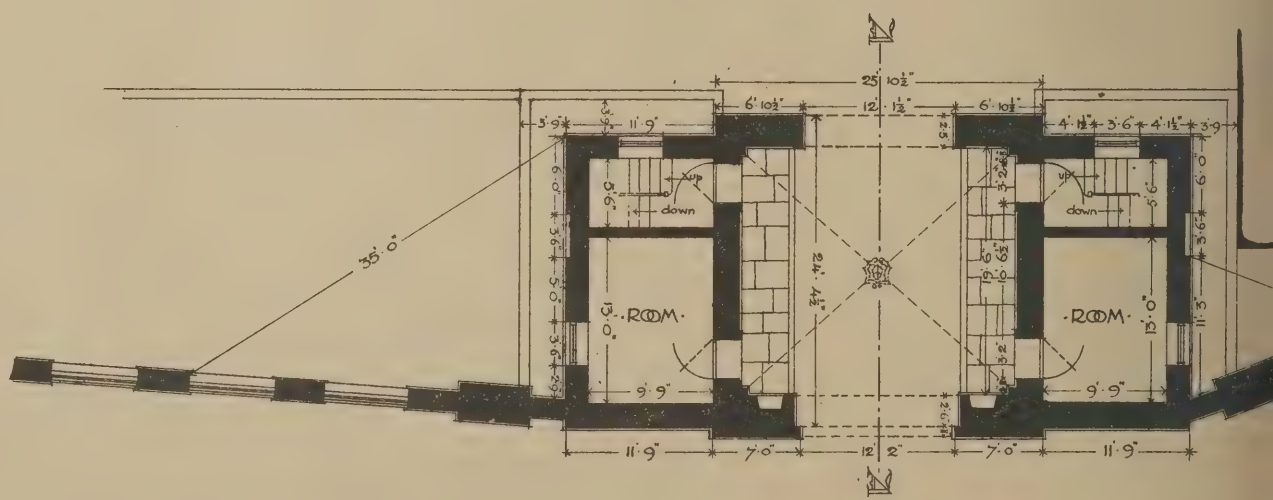
IN our issue for last week full particulars were given of a new competition for architectural students, with prizes of £5 5s., £3 3s. and £2 2s. The problem is to re-design the front of No. 182, Fleet Street, London. Designs must be sent in between November 25th and December 1st next.

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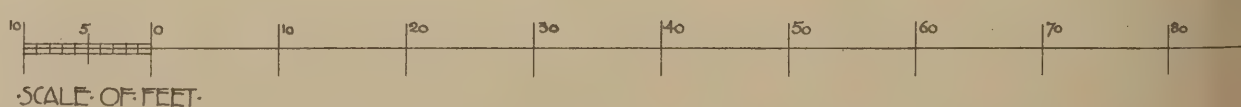
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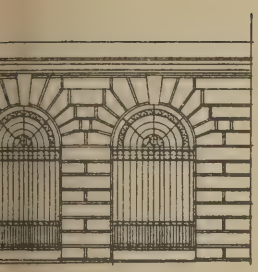
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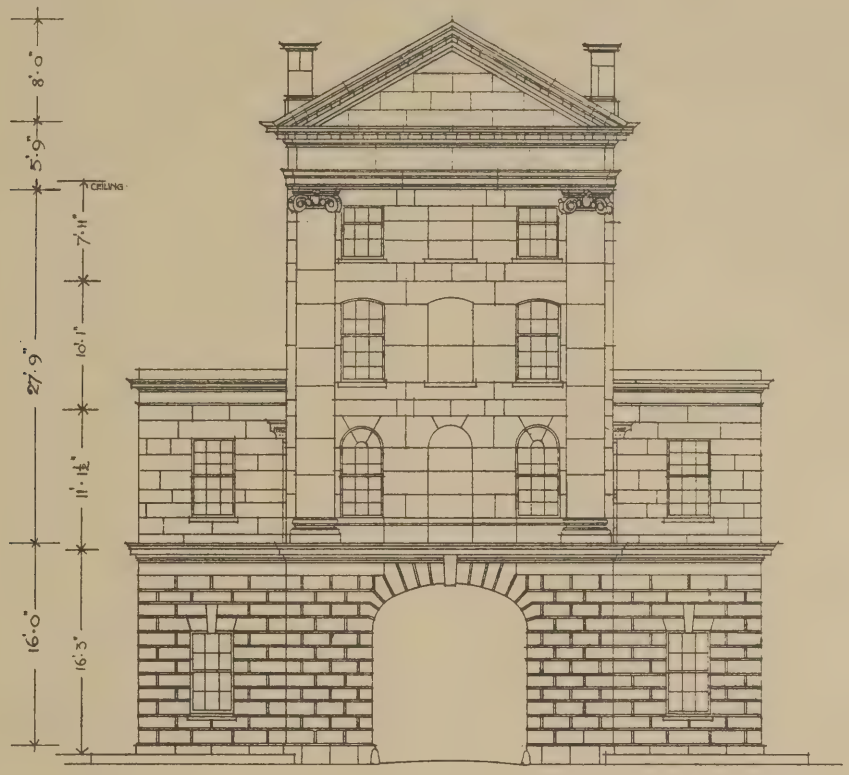


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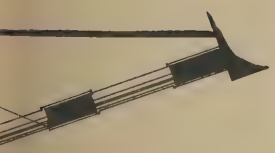




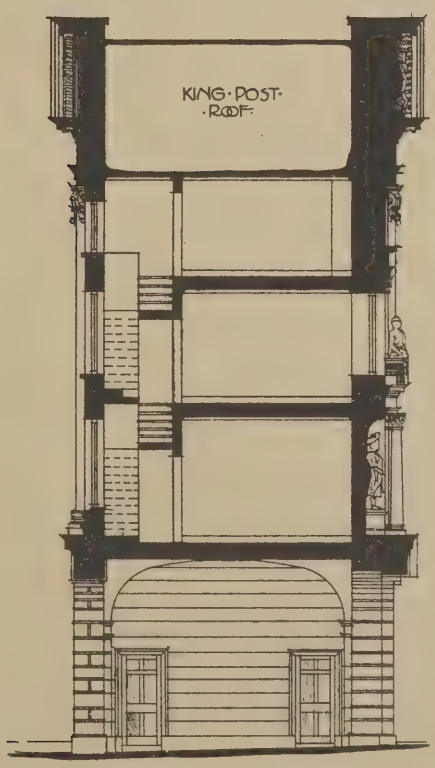
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KING·HENRY'S·GATE·LEADING·FROM·
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Supplement to
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"MOOR CRAG," WINDERMERE. C. F. A. VOYSEY ARCHITECT.



"MOOR CRAG," WINDERMERE. C. F. A. VOYSEY, ARCHITECT.

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SOUND-PROOF PARTITIONS.*

A Series of Tests.

THE subject of fire-resistant partitions and of heat-resistant coverings for wooden surfaces has long since been investigated on behalf of the Factory Mutual Fire Insurance Companies. There are many places in factories where it is desirable to put up partitions sufficiently light to be supported on the timbers without the necessity of building from the foundation. There are also many stairways, elevator-wells and belt-chambers in mills where it is desirable to put up a fire-resistant partition without going to the heavy expense of encasing it in brick.

The materials and method of constructing such partitions vary with the conditions in each case. Thin metal, plastering on wire laths, expanded metal and other methods have been applied in different cases.

Among the heat-resistants, the Sackett's Plaster Board proved to be one of the most effective for covering wooden surfaces or partitions made of plank. This material is made ¼in. in thickness and may be made thicker. It consists of four layers of felt and three layers of magnesium plaster. It is made in large sheets and may be fastened up in various ways at a moderate cost. It is then covered with "brown plastering" so-called, and finished with a skim coat of hard plaster. The partition occupies a very small space; some which were put up in the office occupied by the undersigned, about two years since, without interfering with the daily work in any considerable measure, have proved to be free of cracks or any discolouration, taking up very little space. In this instance, the plaster board was nailed to seasoned wood-studding.

So far as we could judge, this material also retarded the passage of sound.

When the subject was submitted to Professor Norton by the architect in charge of the construction of a dormitory or dwelling-place for students in the New England Conservatory of Music, arrangements were made for including this material with others. The report of Professor Norton is herewith submitted.

Cabot's Quilt, recommended in connection with this material, is made of dry seaweed, padded between two thicknesses of paper, which, in buildings of fireproof construction, should be asbestos paper.

The architect in charge of the construction of the building of the New England Conservatory of Music, in which instruction is to be given, has adopted a partition of the Keystone Fireproofing Co.'s blocks with the Cabot's Quilt between the two sections.

These buildings are both approaching completion, so that ere long a practical test will be possible by which the relative sound-proof quality of each partition may be determined.

EDWARD ATKINSON, Director.

Report of Mr. Charles L. Norton.

The subject of partitions for fireproof buildings is one which has led to much investigation, especially by the New York City Building Department.

When it is desired to make a partition which shall be reasonably sound-proof, it is apparently necessary to diminish somewhat the absolute incombustibility of the partition, though to a less extent than was supposed.

The following account of tests made for Mr. Edward T. Barker, architect of the dormitories of the New England Conservatory of Music, will show the relative values of some of the typical partitions of sound-proof separations between rooms.

There were built upon the concrete floor of the B. and A. warehouse, East Boston, five rooms, 7ft. square, whose side walls were made of the several partitions. The rooms were built upon a floor of the same kind as that which is to be used in the buildings for the students of the conservatory, for which the results of these tests were especially desired.

The rooms were built near one another on the fifth floor of the warehouse in a large loft or room about 50ft. by 70ft. long and 9ft. high. The ceiling of each room was the under surface of the concrete ceiling of the large room. Each room had a floor of two thicknesses of ⅛in. floor boards with two thicknesses of Cabot's Sheathing Quilt between the floor-boards and the concrete slab of the main floor. On one side of each room was a door with a glass panel, the door-jambs being faced with soft felt, and the bottom of the door was fitted with a stop or "weather-strip," operated when the door closed, making a tight joint at the bottom.

The side with the door will be referred to as the front in the following description:—

Room A: This room was submitted by the National Fireproofing Co., and its four sides were made of terra-cotta blocks. The front and back walls were made of blocks 4in. thick; the sides of 2in and 3in. blocks. After the blocks were in position the room was given two coats of plaster inside and out.

Room B was submitted by the Keystone Block Co., and its four walls were made of the blocks of the Keystone material of the nature of plaster-of-Paris with a fibrous bond. The front wall was of blocks 4in. thick, and the left side was of blocks 2in. thick, the back of blocks 3in. thick, and the right side of two 2in. blocks with a 2in. air-space between them. The entire room was given two coats of plaster inside and out, except the front, which had no plaster on the outside of the blocks.

Room C was submitted by the Sackett Wall Board Co. and was built of Sackett Plaster Board ¼in. thick, wired upon both sides of 3in. steel channels. The channel truss or studs of the back and right side were wrapped with felt about ⅛in. in thickness before applying the plaster board. The Sackett Plaster Board is a composite board of alternate layers of paper and plaster, the whole being about ¼in. thick. This room, like the other, was plastered inside and out, but to a slightly less thickness.

Room D was submitted by J. Russell & Co. and was of a more complex construction. The left side was a solid partition of metallic lath and plaster. The ⅞in. steel ties were spaced 16in. on centres, metal lath was applied to one side only of the ties, and then plastered to a thickness of 2in. The rear wall was built upon two rows of ⅞in. studs staggered. Between them were placed one thickness of waterproof paper about $\frac{1}{32}$in. thick and metal lath was wired to both sides of the row of studs and given two coats of plaster. The right side was of the same construction, with a layer of ⅛in. felt between the two thicknesses of waterproof paper. The front wall was of metal lath on two rows of staggered studs, with Cabot's Seaweed Quilt between the rows of studs.

Room E was submitted by Mr. Samuel Cabot, and was wholly of metal lath-and-plaster double partitions, with the space between the laths filled with Cabot's Sheathing Quilt. The front and left sides contained three thicknesses of quilt, and the right side and rear two thicknesses. The quilt was placed between the studs and the metal lath, and where three thicknesses were used one was between the row of studs as well.

The rooms had been vigorously dried for several days, none longer than a week, but the whole building was so damp and the time so short that no considerable part of the plaster and none of the interior portions of the partition were dry. The Sackett Board room was the driest and Cabot's was the least dry.

The preliminary trials showed so great a range of efficiency of the several constructions that the microphonic apparatus, which was designed to make rapid comparisons of sound intensity possible, could not be used. Reliance had to be placed wholly on listening with and without a felt-mouthed stethoscope at the outside of the partition to sounds of various quality and intensity from within. The notes of the piano, violin, cornet and the human voice were carefully tried throughout wide ranges of pitch and intensity. The performers and the instruments were interchanged: every possible chance of unfairness, due to the variations of intensity in the sounds used, was eliminated. Of course, no interchange of the positions of the room was possible. No electrically-driven tuning-fork could be used for producing sounds of constant loudness. The insulating property of some of the partitions was so good that not even the blare of a cornet or the overpowering tones of an Italian tenor, drawn from the ranks of the labourers on the building, could be heard through the partition, except by careful listening within a few inches of the wall.

After much consideration, the writer has given the following ratings to the different partitions. The order of their standing upon the list indicates their efficiency as compared with those above and below them.

No.	Room.	Side.	Scale.	Composition.
1	E	Left	100	Cabot s Quilt, 3 thick + metal lath.
2	E	Right	95	Cabot's Quilt, 2 thick + metal lath.
3	E	Rear	95	Cabots Quilt, 2 thick + metal lath.
4	C	Rear	85	Sackett Board, 2 felt on ⊏s.
5	C	Left	85	Sackett Board, 2 felt on ⊏.
6	C	Right	80	Sackett Board, 2 felt.
7	D	Rear	75	Metal lath + paper.
8	D	Right	75	Metal lath + paper + felt.
9	B	Right	60	Two 2in. Keystone Block with 2in. air-space.
10	A	Rear	50	4in. National terra-cotta blocks.
11	B	Rear	50	3in. Keystone blocks.
12	A	Right	45	3in. National terra-cotta blocks.
13	B	Left	40	2in. Keystone blocks.
14	A	Left	40	2in. National terra-cotta blocks.
15	D	Left	30	2in. Metal lath, solid plaster.

Nothing more is to be inferred from the numerical efficiencies than that the first partition is about three times as good as the last, and that the numerical interval between any two partitions on the list merely indicates the order of magnitude of the difference between the partitions.

The partitions making up the rooms submitted by Samuel Cabot and the Sackett Wall Board Co. were the most efficient; but it is distinctly to be born in mind that no other room had so easy a test as these did, in that each of the others had one thin and ineffective side which transmitted sound to the sides adjacent to it. The thin side of the Keystone room was noticeably resonant and plainly rendered it impossible to make a fully satisfactory test of the air-space partition. The solid metal-lath plaster partition of the room submitted by J. Russell & Co. acted in the same way in that room.

I do not believe, however, that this defect in the structures has caused any changes in the position on the efficiency list of the Cabot and Sackett rooms.

The efficiency of the Cabot Quilt as a material for rendering the partition "sound-proof" is so clearly demonstrated in these tests that I recommend it for use in the partitions for which these tests were made. The nature of the material in which the quilt is encased should be carefully considered. I do not think it within the province of this report to discuss the partition from other than acoustic considerations, and as an encasing medium the most effective material is Sackett Board and Adamant Plaster.

I would, therefore, give as my opinion that the best acoustic results would be attained by using a partition of Sackett

* From the "American Architect."

Board and plaster with two thicknesses of Cabot's Quilt between the plaster board.

I should recommend a wooden stud rather than steel channels, if the fire-risk is not materially increased thereby.

As later tests showed, some sort of a suspended ceiling will be needed, as the concrete slab transmits the sound across the top of the partition readily. No trouble will be given by the sound passing through the concrete to the rooms above or below; but, unless a layer of Cabot's Quilt, with under-lath and plaster, or of Sackett Board and plaster, be put on the under side of the concrete ceiling, the efficiency of the partitions will be diminished somewhat.

The front walls could not be tested because of the leaks around the door and through the door-frames, even where covered with a large shutter padded with Cabot's Quilt. It is evident that a double glass door will be needed. The floor construction is acoustically good.

Keystones.

A New Vicarage at Totnes is being built at an estimated cost of £2,040 from designs by Mr. A. H. Roe, A.R.I.B.A., of Brockley.

New Theatre for Colchester.—Plans for a new theatre which it is proposed to build at Colchester on a site east of the Town Hall have been submitted to the municipal authorities. The theatre is to seat 1,100 persons. Mr. J. W. Start, of Colchester, is the architect.

A new School at Helensburgh is to be erected in East Clyde Street. Accommodation will be provided for about 600 pupils. There will also be classrooms for cookery and laundry. The cost will exceed £10,000. The architect is Mr. Alexander N. Paterson, Glasgow.

A new Music Hall at Chelsea is being erected in the King's Road (facing the town hall) from designs by Messrs. Wylson & Long. The front is faced with buff terra-cotta, and has a frontage of 106ft. The auditorium will be 64ft. wide, 84ft. from the front wall to the line of the curtain; and the height from pit floor to ceiling, 46ft.

Congregational Church, Bury Park, Luton.—The tender submitted by Messrs. T. and E. Neville & Co., Luton, amounting to £4,429, has been accepted for this church, and building operations have been commenced. The architects are Messrs. George Baines, F.R I.B.A., and R. Palmer Baines, 5, Clement's Inn, Strand, London, W.C.

Fireproof Floors.—The Columbian Fireproofing Co., Ltd., of 37, King William Street, E.C., have commenced their contract for fireproof floors and roofs at the Kirkcaldy Electric Generating Station for the Kirkcaldy Corporation, and have now virtually completed their large job of floors and roofs at the electric generating station at Bow for the Charing Cross and Strand Electricity Corporation, Ltd.

The Old Roman Catholic Church of St. Mary's, Moorfields, it will be remembered, was recently pulled down for the Liverpool Street improvements, and the immense picture on one of the walls, representing the birth of Christ, destroyed, although the work was valued at £10,000. The new church, built in Eldon Street, close by, is almost completed, and will be consecrated next month. It is smaller than the old church, which was the largest in the City. Electric lighting is installed, while the greater part of the natural light comes from the roof, there being scarcely any window space at the sides, owing to the building being closely hedged by blocks of shops and warehouses

A New Library and Technical School at Newton Abbot is being erected. The architect is Mr. Silvanus Trevail, F.R.I.B.A., of Truro and Westminster, and the builder is Mr. Henry Goss, of Torquay.

A Life-size Marble Statue of Queen Victoria has just been completed by Mr. Francis Williamson, of Esher, for erection at Perth, Western Australia. The statue, which is the gift of Mr. Allen Stoneham, is mounted on a granite pedestal.

A Consumption Hospital outside Liverpool has just been completed. The site is at Heswall, in Wirral, and provision is made for twenty-four beds. The land, building and furnishing have cost about £12,000. The architect was Mr. Charles H. Lancaster, Liverpool; the builder, Mr. Thomas Spencer, Aintree; and the clerk of works, Mr. C. P. Green, Heswall.

A Magnificent Bronze.—The superb bronze statue of an athlete which was found in fragments at the bottom of the sea near Cerigo (Cythera) in January last year has been successfully restored by M. André, the French artist, and will soon be exposed to public view in the Athens Museum. The statue, which is of extraordinary beauty, may be classed among the finest existing remnants of ancient art; as an original bronze of the best epoch it is unique. It presents many features of the school of Lysippos, and may possibly be the work of the great sculptor.

At the Broad Street end of London Wall, E.C., a small building has been erected as an extension of All Hallows Church for the purpose of a shelter for working men who arrive in the city by the early trains, hours before their places of employment are open. The front is of stock bricks with red gauged elliptical arches and stone dressings. The architect is Mr. Newton, of Thornton Heath, and the building has been carried out by Mr. J. W. Heeps, of London Wall, under the superintendence of Mr. C. Dickinson as general foreman.

A New Cattle Market at Braintree has been erected at the north-west corner of the old Fair Field. The architect was Mr. F. Whitmore, of Chelmsford; and the work has been completed at a cost of just over £2,000. Pen accommodation is provided for upwards of 200 pigs, 820 sheep, 24 beasts, and 40 calves, with an open space of 4,600 ft. super. for loose cattle. There is a stand for horses and a horse run, with a large open shed and two spacious and lofty stables. On each side of the main entrance there is a building for office purposes, &c.; and the whole area, about an acre in extent, is paved and drained.

A Three-Light Window in Errigal Trough Parish Church, Co. Monaghan, Ireland, has been erected. The lights are lancet-shaped; in the centre one is a figure of St. Bartholomew, and in the side ones are the arms of the See of Clogher and the See of Armagh, while the remaining ornament consists of clusters of Passion Flowers, &c., &c. The window was carried out by Messrs. Abbott & Co., of St. John's Studio, Chapel Street, Lancaster. The same firm has secured the contract for the whole of the leaded glass required for the new Kursaal, Harrogate.

The Auctioneers' Institute.—The opening meeting of the session of the Auctioneers' Institute of the United Kingdom was held on Wednesday evening last at the Medical Examination Hall, Victoria Embankment. The president of the Institute, Mr. John Hepper, who was in the chair, delivered the inaugural address. He referred to their application for a royal charter, and said that the refusal had disappointed them. It was opposed by the councils of the Surveyors' Institution, the Royal Institute of British Architects, and the Chartered Accountants of England and of Ireland.

Buccleuch House, Richmond, Surrey, was offered for sale last week, but was withdrawn at £17,500.

A Statue of a Finnish Patriot.—A colossal statue was unveiled recently in Helsingfors of the great Finnish patriot and savant, Elias is Lönnrot, who was born in 1802, and died, greatly honoured, in 1884. It was executed by the Finnish sculptor, Mr. E. Wikström.

The Trinity Presbyterian Church, Kentish Town, which was to have been reopened on Sunday after repairs, caught fire on that day, due to a stove in the schoolroom being lighted. The church stands at the Camden Town end of Kentish Town Road. The flames were prevented from enveloping the church. It has, however, sustained serious damage. The woodwork of the whole of one side of the interior had been badly scorched and part of the roof burned off, in addition to considerable damage done by water to the roof and other portions of the interior, on which £200 had been spent only recently. The school was destroyed, and altogether the damage is estimated at £1,000.

Another London Church.—The foundation stones of the London Baptist Association Church, Mitcham Lane, Streatham, S.W., were laid last Thursday, October 23rd. It is Perpendicular Gothic, freely treated in style. The facings are of pressed red bricks with dressings of Bath stone. A bold tower forms a prominent feature at one corner. The estimated cost of the complete block (without upper portion of tower) is £5,238, the latter being £440 extra. The portion at present being erected is the tower, nave and vestries only, together with temporary apse. The architects, whose designs were accepted in a recent competition, are Messrs. George Baines, F.R.I.B.A., and R. Palmer Baines, 5, Clement's Inn, Strand, London, W.C.

L.C.C. Memorial Tablets.—The Historical Records Committee of the London County Council in their last annual report just issued, mention the Council's acquisition of the house, 17, Fleet Street, originally built in, 1610 for Henry, Prince of Wales, as an office of the Duchy of Cornwall, an almost unique specimen of the architecture of the period. Rebuilding and restoration works have been executed. In the case of Christ's Hospital, Newgate Street, doomed to demolition, the committee were permitted to take photographs and measurements of the principal architectural features of the buildings for the purposes of record. The committee keep a record of London's historic buildings, and to them, or the Council, has passed with the consent of the Society of Arts, the work of affixing memorial tablets to the external walls of houses which have been the residences of famous men and women.

The Church of St. Thomas of Canterbury, Salisbury (dating from the fifteenth century), is in great need of external repair. The church, which is seated for about 1,000 persons, is remarkable for its lofty choir and nave, with clearstory throughout. It has an exquisitely panelled ceiling and fine mural paintings, while the tower is held by some to be of earlier date than the rest of the fabric. The committee have placed the work in the hands of Mr. T. G. Jackson, R.A., who has reported that the nave arcades have settled westward, and that all the columns have a slight inclination in the same direction. He proposes to remedy this by adding substantial buttresses to the west end. The tower, he finds, inclines so much to the south that the point of the spire, which is 95ft. from the ground, has moved about 2ft. 3in. from the perpendicular axis. The roof of the south chancel aisle is in a bad state, and will require reconstruction. It will also be necessary to take off and recast much of the lead on the roof. The total cost of the work is estimated at £5,000.

THE ART AND TRADE OF HOUSE DECORATION.*

By LEWIS F. DAY.

THE distinction between art and trade is obvious. They represent the two pposite poles of occupation—in theory. In ractice the two things are inseparable—if y trade we mean not merely the dealing i a thing but the doing it—and I take it iat *is* included in house decoration.

In every occupation by which men earn a iving there is (and always has been) an lement of trade.

In all work of man's hand in which it is ossible for him to take a pride there is an lement of art.

And yet it is sometimes disputed whether rt and trade are reconcilable one with the ther!

To my mind the only question is as to the *egree* to which trade enters into art, or art an enter into trade, without prejudice in ie one case to artistic, in the other to com- iercial, success.

Art is a means of livelihood—but by no ieans of livelihood only. or it soon ceases o be art at all. Handicraft is a means of rtistic expression, but by no means of rtistic expression only, or it soon ceases to ay.

Here let me explain. I have been using ie word trade, so far, perhaps too much in ie old sense of "trade, art or mystery" of oing something. We use it in the present ay more in the sense of "dealing."

Perhaps it will save possible confusion if adopt in future the term "handicraft" (or craft" for short) in speaking of the work the decorator's hand, and reserve the ord "trade" for the business side of his ansactions.

And I am making here no invidious stinction. I am not at all sure but hat the best thing for an artist is that he ould have to earn his living at his art and vn it his trade. There is at least one ex- mple that may be cited of a great painter en who conducted what is called his "pro- ssion" in a thoroughly businesslike and en tradesmanlike way, Sir Joshua Reynolds wit; and no one has denied that he was honour to English art.

There comes a point of course at which t is hurtful to trade interests, or at which t in turn is hurt by concession to trade fluences; but as for art and handicraft e two things are and always have been separable.

Without craftsmanship art is inconceiv- le. Without art handicraft is hardly orth its name.

All art presupposes craftsmanship, and in craftsmanship there is at least the promise art. The two are so engrafted together at it is hard to say always where craftsman- ip ends and art begins. In fact, it seems me they are not two, but two phases of e same thing: the one is, so to speak, the wer of the other. It is workmanship which der favourable conditions blossoms into t.

There is so much "high-falutin'" talk out art that one is almost ashamed some- nes to call oneself an artist. Perhaps it ould be more becoming in us all to profess s and claim only to be workmen—leaving for our work to show the kind of workmen at we are. For my own part I place work- anship so high, that to be a good workman about as much as anyone need claim. If is an artist his art will speak for itself. It is rather a sordid satisfaction that we t from being acclaimed great artists by ople who don't know anything about art. hat really warms our hearts is when a workman recognises that we have done a good bit of work.

*A paper read before the National Association of ster House-Painters and Decorators of England and les.

What Decoration is.

There was a time perhaps when all art was decorative. If that was ever so, the times are changed. Decoration is nowadays only a division of art, and house decoration is only a division of that division, and even house decoration is divided into two—into what claims to be entirely an art and a fine art, and into what is content to be a mere matter of business.

It is this last subdivision which is to be deplored. There is only one thing more deplorable. Worse than the professional attitude, with its unwarrantable pretensions—worse than the dead level of business practice, which may at least be honest—is the quackery which takes the name of art in vain, using it only to decoy the unwary and to conjure the unearned money out of their pockets.

And neither art nor trade has the monopoly of this kind of quackery. There is, on the one hand, the too cunning tradesman who, as it were, covers over the cracks and flaws in his work with a label describing it as art, and does infinite discredit to the genuine thing; on the other, there is the too artful artist who pretends that his amateurish attempts are the only true form of decoration, and by his absurd pretensions not only puts up the back of practical men but gives to sane people generally the erroneous idea that art is incompatible with commonsense.

But that is by the way. My point is the mischievous severance of the *art* of decoration from the *trade* which, if not a comparatively new thing, is certainly more complete than in old days it was. And the reason of it is not far to seek.

Art and craftsmanship, I said, are inseparable. It is difficult to draw a hard-and-fast line between them, and say here one ends and the other begins.

For, the moment the consideration of beauty (apart from utility) enters into the calculations of the workmen he touches on the domain of art.

And it is all but, "if not quite," impossible for a man to carry workmanship to its furthest point *without* concerning himself about the beauty of his work. As a matter of fact, no man does; and so it is that art and craftsmanship are bound up together. But it is quite possible for a man of business to carry on his trade without regard to art; as a matter of fact, the *mere* man of business not himself a workman usually does.

I am not going to whine about "the good old times"; no doubt they were in some respects better than those we live in and in some respects much worse. All I mean to say is that the conditions have changed, and that in regard to the carrying on a trade according to the principles of thorough workmanship, to say nothing of art, they have changed for the worse.

And the change consists largely in this—that whereas house decoration was always in the hands of the workman, of a man who if he did not work with his own hands had done so in his time and knew all about it, the tendency is more and more in the direction of its coming under the control of an enterprising man of business.

It is not by any means now for the first time that the question of business arises. Decoration was from the first mixed up with it. The mischief is not that the decorator has to make it pay—he has always had to do that—but that the working decorator has so often hardly a say in the matter.

Handicraft is being swallowed up in trade, the workman swamped in the enterprise he is engaged in; and we have, as I said, to distinguish between the man who does the decoration and the man who, shall I say, finances it. What ails the art of decoration is not the introduction into it of the commercial idea, but that it begins to lose sight of all interests excepting those of commerce.

Things are done nowadays on a scale involving such outlay as to call for the control of an administrator, of a man of business. But unless the man of business is an artist too (which we can hardly expect that he should be), or unless he leaves the control of things artistic to someone who *is* an artist, how is it possible that art should enter into what he is pleased to call decoration? He cannot help himself. He may quite honestly believe he is going in the direction of art when he is in reality turning his back on it.

We are, all of us, artists no less than others, only too eager to make money. I am not for a moment implying that the artist is more virtuous than the tradesman or more disinterested in his dealings—only the interests of the two classes of men are no longer precisely the same. An artist, or even a workman, cannot, so long as there is a spark of artistic or workmanlike spirit left in him, look at decoration entirely from the point of view of the ledger. Keen as he may be in money matters, he has, if not precisely an artistic conscience to worry him, at least a strong counter-inducement to greediness, and a temptation to risk (if not deliberately to sacrifice) something at least of pecuniary gain in the interests of his work. He is disposed to believe that what he feels to be best *is* best, and is therefore best worth doing, even if it does not in the end pay best. His belief in himself, his very vanity (not to put it on too high a level), urges him to do his best and to do it with an energy of conviction no mere investor of capital would be likely to share. No one will ever believe quite so fervently in the swan-like attributes of the artist's geese as himself—the parent gander!

The misfortune is that the business man, as such, does not believe—is not goose enough, if you will, to believe—in art at all, except as a catchword. The convictions of the artist are not *his*, that he should have the courage of them! And the mountains in the way of artistic success are to be removed only by faith, the faith in art, which we can expect to find only in the artist. People talk of the "enterprising man of business." In the matter of art I have found him, as a rule, anything but that. It is only very occasionally that I have come across one who had the courage to say, "I will do good work, and it *shall* succeed!"

Excessive prudence, not to say timidity, is more the rule. Men of business believe in the success of what has succeeded, and are always more ready to follow somebody's lead than to back their own judgment. It has been my lot to make designs for a manufacturer, which he has kept for a year or two in his portfolios until someone else produced something of the kind. Then he has summoned up the pluck to produce them. That is your business enterprise!

Art has flourished best in trades of no great magnitude—trades small enough to be conducted by, if not an artist, a man not so engrossed in business operations as to have no time or temper to go into questions of art.

Business is Business.

As business grows the chances of art grow less and less—(artists who have gone into business on their own account, and made a big thing of it, will be the first to own that)—and when it comes to monster enterprises, to say nothing of syndicates, the chances are nil. To the man of business "business is business." He takes no account; can take no account, of anything that is to be got out of a transaction but profit; and by profit he means money. The beauty or the ugliness of the work turned out, the perfection of its execution, the satisfaction that any human soul may get out of it in the

doing it or when it is done (except in so far that the customer must not of course be dissatisfied, or he will go elsewhere)—that is all "sentiment," with which as a man of business he would aver he has nothing to do.

Well, that may be so. But sentiment has something to do with art. Without it you cannot get so much as really good craftsmanship.

I daresay some of you think I am making much ado about very little—that the difference between mere tradework and art is not so very great, or that there is ample compensation for what falling off there may be; that what is lost in quality is gained in quantity, that art is brought more within reach of all than ever it was, that it is cheaper, more popular, and that on the whole the balance of advantage is very likely in favour of work done under the stern auspices of trade.

I am not prepared to deny that something which goes by the name of art is to-day more widely spread than ever it was before; that it is cheaper—more within the reach of the million. What I do maintain is that the cheaper, more easily obtainable, more widely-spread decoration, has a fair chance of not being art at all.

What Art is.

What, then, do I understand by "art"? I said awhile ago that it was the flower of workmanship. To put it less figuratively, it is that something in workmanship which lifts it above mere workmanship—that touch of delicacy or beauty, of individuality or originality, which a man puts into his work, consciously perhaps for his own satisfaction, unconsciously perhaps because he cannot help it. It is that which it comes to a man to do—for which reason we call it "inspiration" when it is a great thing that is done. But the same impulse enters into little things, into the most modest decoration as well as into the more ambitious. It is something not to be gauged. It is as subtle as the scent of a flower or the flavour of a fruit. It has no price and is rarely paid for (until a man is famous, and then he reaps the harvest of long years of patience); but whether the artist is paid for it or not, he puts it into his work because he *is* an artist, and it would be no satisfaction to him if he did not.

And he is not much of a workman who does less. There is no fun in doing less. A good workman *winces* at bad work; he does his work well for the love of it.

There is the secret of it—the man's liking for his work.

Commercial enterprise takes no account of that, and in proportion as decoration is carried out on strictly business principles it becomes less and less possible for a workman to put his heart into his work, and so to put art into it. "Business is business," they say—I say business is a part of life. And it is a mistake to separate a man's trade from his enjoyment and his personality. Who, think you, is the happier, the man who is proud of his shop or the man who is ashamed of it? There is not the least doubt as to who does the best work. And why are men ashamed of their shop, except that they do there things they would not do at home? How comes it there is any sting in the word "tradesmanlike"? All that is offensive in it should rather be stigmatised as *un*tradesmanlike if we had not come to justify in trade what we should in daily life call mean, if not dishonest.

The first step, I take it, towards making house decoration an art is not to be ashamed of it as a trade—to adopt it as a calling in which a man can take an honest pride, one which he does not altogether leave behind him when he leaves the shop, one which is never very far from his thoughts, one which gives scope to his best faculties and does not tempt him from the path of manliness.

The next step is to have some faith in art—to be ready to sacrifice something for it.

Artists are not Fools.

Artists have the credit of being quite unpractical people (and I am not going to deny their cussedness), but they are not quite such fools as they are taken for. If they persist often in doing what they feel or know to be the right thing artistically (instead of following the advice of those who would have them do the thing commercially expedient), it is not because they do not know how poor a piece of work will pass muster, but because they know so well how poor a thing it is that is asked of them, and would not think life worth living if that were all they could do in it. They have to live and to pay their way; that much assured, it is not their folly, but their highest wisdom, that they pursue their art even at the cost of ease or affluence. And what if we do not make much more than a living out of it? We are not so greatly to be pitied—perhaps we ought not to expect to be well paid for doing that part of our work which we like best! The men to be pitied are men who make money out of work they have no sort of satisfaction in doing—the men to whom "business is business," who make money and bore themselves with it when they have got it. You remember the story of the shirt of the happy man which was to cure the king—how when they found him at last he hadn't a shirt to his back. Only a percentage of artists belong to the race of dreamers—too small a percentage one is sometimes inclined to think; the majority have perhaps too keen an appreciation of the "main chance," as it is called. Capable artists are as a rule capable men, quite distinctly practical. A man may be a poet and yet an acute man of business.

However, allowing for something in the artistic temperament (and I don't deny it) which is calculated to ensure anything but his success in trade, inasmuch as he is a good workman he is very well qualified to conduct his own affairs.

The quick intelligence, the prompt resourcefulness, the patient industry, the real interest in what he is doing, the belief in it, the determination to carry the thing through (all of which are implied in craftsmanship), are so many qualifications for business, in any thorough sense; yet it is assumed (and will be assumed to the end of the chapter, I suppose, the facts of the case notwithstanding) that, being an artist, he is hardly endowed with common sense—just as we go on making a stereotyped distinction between rhyme and reason! as though the words of wisdom had not continually taken the form of rhyme!

We have all of us, I daresay, known artists born to failure - men who seemed to have no hold upon the world, nor it upon them; but their intention was better than their performance; they were not conspicuously good workmen. One the other hand, who ever came across a masterly workman who was not perfectly well able to take care of himself? So far from his failing on the side of impracticality (how *can* a good workman be unpractical? it is a contradiction in terms), the cunning workman is in danger of becoming too much a man of business.

The Position of the Artist.

I have all along been taking for granted some artistic capacity on the part of the master decorator. Failing that—and supposing him to have the rare wit to know that it fails him—his cue is, of course, to enlist the services of someone who has it. The solution of the problem of twentieth-century decoration lies very likely in the association of the artist and the workman with the man of business—if not in one man, or in two, then in three. But the danger is that the controlling spirit of the three, being the man of business, does not as a rule allow the man of art his share in the conduct of the concern. Of three men working together one must take the lead; but no one of them need have it all his own way. The undue predominance of the business element nullifies the artistic.

This is very apt to be the case when, as usually happens, the artist is not a member of the firm but only in its employ. I have known good artists practically thrown away because they were not allowed scope for their artistic faculty. It seems odd that a man of business should pay for the services of an artist (and pay highly for them, too and not make anything like full use of them. But that is what frequently happens. If he knows better than the artist, why employ him; if he employs him, why not trust him? One reason why the artist has a bad name with employers is that they worry him and will not leave him to do his own work in his own way, about which after all he is the best judge. Of course, there are impossible artists whom it is sheer folly to engage. My advice to the employer is, take every pains to find the sort of man your business wants, and having found him trust him. Do not engage him if you cannot; do not order him about; he won't stand it—why should he? Consult him on points on which he knows and you do not. And of this I am sure, the more you leave to him, the more you give him his head, the more you will get out of him and the better work he will do. Hem him in with unnecessary instructions, and, with the best will in the world, he cannot work freely, cannot do his best. You cannot get art by simply paying for it. You must allow the artist to be himself. He is a man, not a mere hand.

Now, in all my theorising I have had in view the practice of house decoration, and the standpoint of the Association which has paid me the compliment of asking me to address its members—master workmen, as I understand, some in a large, some in a small way of business, but all, I hope, disposed to combine with trade at least so much of art as may be practical.

I am not pretending to teach anyone his business. What I hope to do is to encourage some of the more modest workmen who do not see their way to art, to stir up discontent in some who are too easily content with trade, to make you one and all at least think of your trade in its relation to art. Whether you think with me does not in the least matter. I may be more helpful to those who are not of my way of thinking, if only by way of stimulus or irritant. The important thing is that we should think of what we are about, and not go on automatically.

Small Masters.

The possibilities of art are greater, I think, in the case of small masters than of big employers working for the million. The bait for *them* is cheapness. But they will sometimes rise to art too. I have had a good deal of experience in the production of things into which art enters, and have been in the habit for years past of taking pains to find out how far art is paid; and I have rarely found a good thing to be a failure altogether—or else there was a very good reason for it. I have continually been told, "Oh yes that's all very well, but I have tried art, and it does not pay." But when I have enquired into the art so-called, the wonder would have been if it *had* paid: perhaps the design was good and the colour atrocious or the workmanship was cheap, or it was in a style that was notoriously out of favour. Perhaps the manufacturer mutilated the design before he produced it; perhaps he meant well, but was no judge of art; perhaps he got into the wrong hands altogether. Do not understand me to imply that the best art sells best, or that art of any kind sells best. It does not. But, for all that, it pays. It is the best advertisement. It attracts people, who talk and spread your fame, and

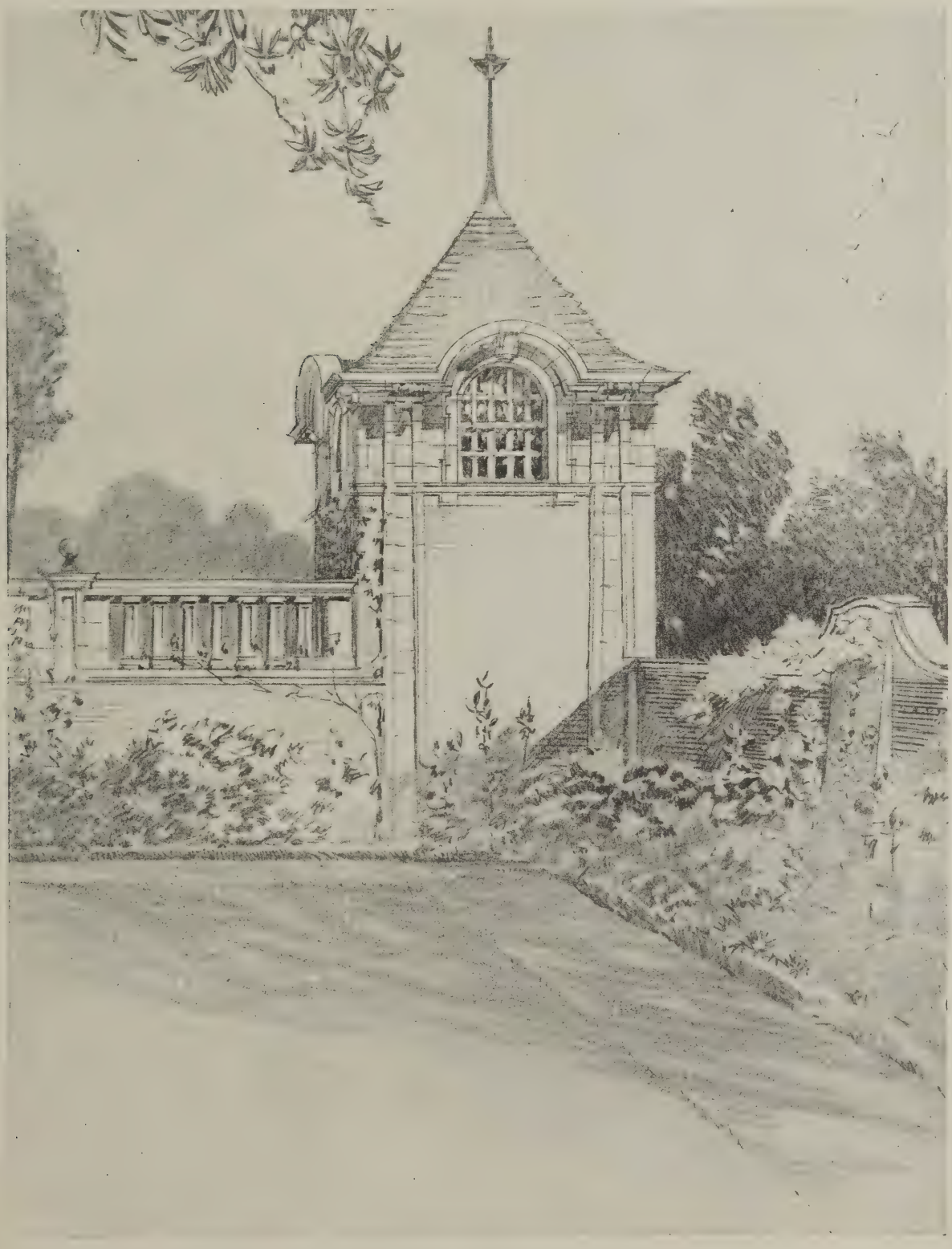
bring to you customers for trade work, admittedly far more profitable than art. Was there ever a better advertisement for drain pipes than art pottery? Art pottery itself can be made to pay (as French potters have shown) on a small scale—on a scale which admits of the personal supervision of the artist—and does not necessitate a larger output than is warranted by the "following" of the artist. And what applies to pottery applies to house decoration. A good artist, with practical qualifications and no desire to undertake more than he can himself supervise, can always make a living; and if any man is to be envied, perhaps he is.

But the point upon which I am anxious to insist is that a house decorator who is not a very great artist, who has not much more than a workmanlike appreciation of good work and a desire to do the best, may quite well raise his trade to something of an art; and it is his own fault if he does not. All that he need have is an ideal and the courage of it.

What is your idea of your trade? Is it to you simply a means of making money? Then I am afraid I have not much to say to you. One trade I daresay is as honest as another; but *that* is a trade into which art has small chance of entering.

Men do not take up a trade, of course, with the idea of furthering art simply. The mere fact of a man's going into business implies that he expects to make a living out of it. But the hope of art in it depends upon his caring for this particular trade, preferring it to any other; upon his being content perhaps to make less at it than he might at some other trade, because he gets partly paid in the satisfaction of doing what he does. So much liking for his work and interest in it there must be if ever it is to blossom into art.

The all-important thing is your idea of the decorator's business—*that* it is which will determine whether or not you have any



PART OF A SCHEME FOR A SUFFOLK GARDEN. THOMAS H. MAWSON, GARDEN ARCHITECT.

chance of combining it with art. Suppose I give you my idea of it! It is the business of the house decorator, as it seems to me, to make decorous the houses of those who employ him. His first business is to consider the wants of his customer. That does not mean to say that he has simply to take the customer's instruction and execute them. He knows, or ought to know (and if he does not he is not much of a decorator)—he knows, I say, much better than his customer how his instructions would work out, and he is in duty bound to tell him when his ideas are impractical, wasteful or in anyway likely to work out unsatisfactorily; to suggest to him in what way they could be improved upon; and generally to encourage him to do rather better than he meant—I don't mean to spend more money, but to have everything well done, and something that he may grow to.

But all the while it is the customer's wants and not his own ideas that he has to carry out. It is neither a *tour de force* in art nor an experiment in decoration that is asked of him. Experiment he must, of course. If he is to keep abreast with his trade, he must lose no opportunity of widening his experience, whether of materials or methods of execution or styles of work; but not at other people's expense, unless they are willing.

How far he may confine himself to one particular style of work and insist upon doing that or nothing is a question (1) of the strength of his personal bias, and (2) of his position—whether he can afford to risk it. If he can, he may make a reputation that way, and it may prove in the end very good business; but to do that he must have some reputation—in fact, a man must have earned the right to take up such a position. On the part of an unproved man it would be intolerable, no proof of art but of artistic arrogance. But I need not dwell upon this; it is the fault to which the decorator is not so prone as the outside artist, who in the matter of decoration is an amateur.

Even in the carrying out of other people's wishes there is ample room for the expression of the decorator's own personality. He need not write himself large all over the house. If he is a man of any strong taste or conviction it will be apparent in his work in spite of himself. And that is where so many decorators fall short. Either they have no convictions or they have not the courage of them; they work to-day in this style, to-morrow in that, according to the fashion.

I am not complaining that the fashions change (we change ourselves; our work to-day is not, let us hope, just what we were doing ten years ago, and yet it may be very distinctively ours). I complain only that we are too ready to follow a fashion, and work all alike, and I maintain that it would be at once more artistic and better business to work as far as possible in our own manner, in which we could thus perfect ourselves and by which we should in time (if we had anything in us) make our mark. I say it is good business, because when you are doing what others can't (or don't) you can charge more your own price for it, whereas the price of what everyone is doing is cut down by competition.

Why the Last New Thing?

It has always been a mystery to me why tradesmen make such a feature of the last new thing. I don't believe it is to their interest to drop, let us say, a system of wall decoration, or a material, or a pattern, just when they are beginning to find out what they can do with it. Fashions get stale, I know, but the reason why they get stale so quickly is that we work them to death. No wonder they get played out.

I doubt if on the whole quick change in fashion even leads to business. Some folk may get dissatisfied with what you did last year and want something fresh, but it does not follow that they will come to you for it; they may vent their dissatisfaction on you, and try someone else. And, in any case, it makes folk shy of spending money on what they know will be old-fashioned in a year or two.

Now, what is never in fashion is never old-fashioned. People don't get so readily tired of it; and if the work you do for them grows upon their liking they are likely to come to you again when they want more; and that is the sort of business there is some satisfaction in doing. Moreover, if you work out something like a style or system of your own, you become expert in it; you make fewer mistakes you can estimate cost with greater accuracy, and your experience all counts.

You may think that is all very well for here-and-there an artist of very exceptional ability as a designer. He need not be a designer at all. He need only be a man of some taste and judgment (qualities, I think, implied in the decorator) and of some character. In every walk of life character counts, and without it no man, whatever his gifts, arrives at anything very great.

I don't want a man deliberately to set himself to invent a new style; that is not how it comes about at all; all he has to do is to follow the hint of his own experience, and it will lead him in time, without his being aware of it, to something like a style of his own.

We have, everyone of us, our failures and our successes in decoration. All we have to do is to follow up our successes; not to go on merely repeating ourselves, but to ask ourselves why this came out well when that did not, to profit by the lesson of experience, to work the fruitful vein, to encourage our customer to choose what we have confidence in. Really it is very much in our power, as every salesman knows. What constitutes a good salesman?—the putting things before people with such confidence that it is contagious. There's no argument like saying, "Well, if you don't like it when it is done, I'll do it again"; and if you know what you are about you don't have to do it again. A decorator should be ready to undertake the responsibility of decoration. It is for the man who is going to live in the room to say whether he will have it red or green or yellow, light or dark, bright or low in tone; but of the precise shade of colour which in his sunny or sunless room will do best the decorator should be the best judge. And in the choice of such things as papers or other wall-coverings people want direction, and would take it if it were given them in the right way. They will not take the pattern you like in preference to the one they like themselves; but if you can tell them why the pattern of their choice will not hang well, and why the one you recommend will, they will generally listen to reason. And, then, why show them such a bewildering lot of patterns which you know, if you are a decorator, will not lend themselves to decoration?

Wallpaper Patterns.

Every decorator knows (what his customer does not) that the patterns which look most pleasing in the book are not the best on the wall. There are patterns (and they are the best) which would never be chosen from the pattern book, which the customer must take on faith, on the recommendation of the decorator, and which it is his business as an artist to recommend. The prettiness, as they call it (the pettiness as I should call it), the finish as they call it (the finnikin detail as I should call it), which is attractive in the book goes for nothing on the wall, or worse than nothing. And the broader and more dignified designs which make for really decorative effect look bald or coarse or simply uninteresting in the sample.

Friezes.

Think of the friezes that bring down the wall by their heavy colouring and full detail—mere variations upon a fussy wallpaper they are designed to "go with," and go with far too closely. And the dull colour of them!—all because the paper-stainer did not know that close under the cornice of an ordinary room the brightest colour is none too bright, or else was afraid of what it would look like in the pattern book.

Ceiling Papers.

That is how it comes that in nine-tenths of the ceiling-papers produced the pattern covers far too much of the ground. A ceiling pattern can hardly be too open, too empty; which emptiness is quite enough to prevent its ever being chosen except by someone who has had experience in decoration—which you have, and your customer probably has not.

I will go further and say that even the experienced decorator learns only by experience which of the more promising patterns fulfil their promise. And, having learnt it, it is nothing short of folly not to profit by his experience and use the patterns he can depend upon.

Individual Pattern Books.

To use them he should have them handy; not have to hunt for them in a variety of pattern books, but make up his own pattern book. It will do him no harm with his customer to have a pattern book which is not everybody's, which is in a sense his own; the patterns all chosen by him; some of them perhaps his own colourings, which will not be found anywhere else. Certain patterns he might even venture to keep in stock, and so get an extra profit on them. His pattern book would want revising year by year—some designs would drop out, some would continue in use year after year and would be practically almost his monopoly (others having put them aside as old and out of fashion). He would, of course, not harp always on the same old lines—he would be continually adding to his repertoire and so satisfy sufficiently the natural desire for freshness of idea. The craving for mere novelty is, to my thinking, morbid, and not to be encouraged.

What applies to wallpapers and wall-coverings applies to floor and hearth tiles, to firegrates, door furniture, and to whatever manufactured things enter into house decoration. A man of good judgment must know that one make or one pattern is better than another; let him run that for all it is worth, and not cumber himself with what he knows to be second- or third-rate. He may keep such things somewhere in the background to show to the occasional customer who wants to see everything and especially the newest thing; but if he shows them cleverly, the result will be to make his customer quite content with what was shown to him in the first instance. Most men can appreciate the difference between good and bad when it is pointed out to them.

Of course the man who pays the piper expects to call the tune. I am not recommending the musician to pipe according to his own sweet will. I have said already that his business is to put into artistic shape the ideas of his paymaster. All I am arguing is that he should put them into artistic shape; and if all the while, in persuading the customer, he is thinking of his wants and not his own whims, I do not think he will often have much difficulty in guiding him into the right choice, and in so guiding him will impress upon the decoration quite as much as need be of his own personality.

(To be concluded.)

Public Swimming Baths at Coventry have been erected from designs by Mr. Lacy, the borough surveyor, by Messrs. Jones & Evans, contractors.

Complete List of Contracts Open.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDERS MAY BE OBTAINED.
	BUILDING:		
Oct. 30	Llangyfelach Mawr, Wales—Additions to School		W. David, 97 Gorse Lane, Swansea.
" 30	Glasgow—Underground Convenience	Corporation	Office of Public Works, 64 Cochrane Street, Glasgow.
" 30	Skerries, co. Dublin—Concert Hall, Baths, &c.	Sea Baths & Recreation Co., Ltd.	F. Shaw, Architect, Drogheda.
" 30	Beckermet, Cumberland—Five Houses		J. S. Stout, 36 Lowther Street, Whitehaven.
" 30	Ramsgate—Brick Wall	Corporation	T. G. Taylor, Borough Surveyor, Ramsgate.
" 30	Stifford, Essex—School Alterations, &c.	School Board	C. M. Shiner, 6, 7 & 8 Crutched Friars, London, E.C.
" 31	Eastbourne—Fire-escape Staircases, &c.	Guardians	F G. Cooke, 2 Hyde Gardens, Eastbourne.
" 31	Ellenborough, Cumberland—Two Houses		C. Eaglesfield, Architect, Maryport.
" 31	Great Yarmouth—Two Houses	J. Ellis	C. G. Baker, Architect, Town Hall Chambers, Great Yarmouth.
" 31	Hereford—Converting Building	Board of Guardians	W. W. Robinson, 10 King Street, Hereford.
" 31	Cork—Rebuilding Premises	Young Men's Association	W. H. Hill & Son, Architect, Cork.
" 31	Newcastle-on-Tyne—Concrete Car Shed	Tramways Committee	A. E. Le Rossiquol, General Manager, Manors Power Station, Newcastle-upon-Tyne.
" 31	Kehelland—Classroom	Camborne School Board	S. Hill, Architect, Redruth.
Nov. 1	Sudbury, Suffolk—Buildings at Sewage Pumping Station	Drainage Committee	T. W. A. Haywood, Borough Engineer, Town Hall, Sudbury.
" 1	Didcot—Alterations, &c., to School	School Board	Hoare & Wheeler, 17 Friar Street, Reading.
" 2	Bildeston, Suffolk—Classroom	Nedging and Naughton School Board.	R. Pannifer, Bildeston.
" 3	Aberbargoed, Wales—School	Bedwellty School Board	James & Morgan, Architects, Charles Street Chambers, Cardiff.
" 3	Guildford—Portland Cement, &c.	Town Council	C. G. Mason, Borough Surveyor, Tuns Gate, Guildford.
" 3	Coseley, near Bilston—Alterations, &c, to School	Sedgley School Board	A. Ramsell, 187 Wolverhampton Street, Dudley.
" 3	Beaufort, Wales—Classrooms, &c.	Llangattock School Board	H. Waters, Architect, Waengoch, Beaufort.
" 3	Sheffield—Silica and Fireclay Goods	United Gaslight Co.	J. W. Morrison, Engineer, Commercial Street, Sheffield.
" 4	Ystradgynlais, Wales—School		P. Williams, Tyr Gorof, Ystradgynlais.
" 4	London, S.E.—Underground Sanitary Conveniences	Lewisham Borough Council	Surveyor, Town Hall, Catford.
" 4	Addlestone—Additions, &c., to School		Vicar, Addlestone.
" 5	New Malden, Surrey—3 Villas		V. Davison, 7 Market Place, New Malden.
" 5	Cwmllynfell, Glamorgan—Chapel		Rev. J. Rees Cwmllynfell.
" 5	Brighton—Alterations to Royal Pavilion	Town Council	F. J. C. May, Borough Engineer, Town Hall Brighton.
" 5	Leavesden Asylum, near Watford, Herts—Isolation Hospital.	Metropolitan Asylums Board	T. D. Mann, Clerk, Board's Office, Embankment, E.C.
" 5	North Eastern Railway—Station Buildings, Cottages, &c.	Railway Co.	W. Bell, Company's Architect, Central Station, Newcastle-on-Tyne.
" 5	London, S.E.—Chimney Bands	Metropolitan Asylums Board	T. D. Mann, Clerk, Board's Office, Embankment, E.C.
" 6	Bishop Auckland Isolation Hospital	Hospital Board	W. Perkins, Architect, Victoria Street, Bishop Auckland.
" 6	Nash Point, Glamorgan—Fog Signal House, &c.	Corporation of Trinity House	Corderoy, Selby & Corderoy, Quantity Surveyors, 21 Queen Anne's Gate, Westminster, S.W.
" 8	Dublin—Cement, Slates, Firebricks, &c.	Gt. Northern Ry. Co. (Ireland)	T. Morrison, Secretary, Amiens Street Terminus, Dublin.
" 10	Walsall—Cartsheds, &c.	Rural District Council	F. W. Mager, District Surveyor, Aldridge. Walsall.
" 11	Barnsley—Outbuildings and Conveniences		J. H. Taylor, Borough Surveyor, Manor House, Barnsley.
" 11	London, N.W.—Additions, &c., at Polytechnic	Middlesex County Council	H. T. Wakelam, Co. Architect, Middlesex Guildhall, Westminster.
" 15	Bromsgrove, Worcs—Lunatic Asylum	County Council	R. J. Oliver, Clerk, Shirehall, Worcester.
" 15	Birmingham—Sanitary Projections to School	Aston Union Guardians	C. Whitwell, 23 Temple Row, Birmingham.
" 19	Dartford—Home for Female Attendants	Metropolitan Asylums Board	Newman & Newman, 31 Tooley Street, London Bridge, S.E.
" 21	Londonderry—Buildings at Asylum	Committee of Management	M. A. Robinson, Architect, Richmond Street, Londonderry.
	ENGINEERING:		
Oct. 30	Shanghai—Electrical Plant	Municipal Commissioners	Preece & Cardew, 8 Queen Anne's Gate, Westminster.
" 31	Aston, Birmingham—Condensers for Electricity Station	Urban District Council	R. P. Wilson, 66 Victoria Street, Westminster.
" 31	Mansfield—Electric Wiring Town Hall	Corporation	E. H. Hewlett, Electric Lighting Station, Birmingham.
" 31	Southampton—Printing Machine, &c.	Direc.-Gen., Ordnance Survey	Officer in Charge of Stores, Ordnance Survey Office, Southampton.
Nov. 1	Harrogate—Pump, &c.	Corporation	W. Dixon, 14 Albert Street, Harrogate.
" 1	Sudbury, Suffolk—Pumping Engines, &c.	Drainage Committee	T. W. A. Hayward, Borough Engineer, Town Hall, Sudbury.
" 1	Londonderry—Deepening Well	Rural District Council	M. A. Robinson, Richmond Street, Londonderry.
" 3	Sheffield—Coal Breaker, &c.	United Gaslight Co.	J. W. Morrison, Engineer, Commercial Street, Sheffield.
" 3	Ware, Herts—Borehole and Test Pumping	Rural District Council	Bailey-Denton, Son, Lawford & Symons, Engineers, Palace Chambers, Westminster, S.W.
" 3	Leyton—Electric Lighting, Heating Apparatus, &c.	School Board	W. Jacques, 2 Fen Court, Fenchurch Street, E.C.
" 3	Uckfield, Sussex—Waterworks	Water Company	C. Dawson, Secretary, Public Hall Chambers, Uckfield.
" 4	Sutton-in-Ashfield, Notts—Water Mains	Urban District Council	G. & F. W. Hodson, Engineers, Loughborough.
" 4	Coalville, Leics—Valves, &c.	Urban District Council	J. B. Everard, 6 Millstone Lane, Leicester.
" 4	Coalville, Leics—Reservoir	Urban District Council	J. B. Everard, 6 Millstone Lane, Leicester.
" 4	Coalville, Leics—Engines and Boilers	Urban District Council	J. B. Everard, 6 Millstone Lane, Leicester.
" 4	India Office, S.W.—Dredger		Director-General of Stores, India Office, Whitehall, S.W.
" 5	Brinscall, Lancs—Steam Disinfector	Withnell U.D.C.	F. Beaver, Hon. Secretary, Council Offices, Brinscall.
" 5	Padiham, Lancs—Retorts, &c.	Urban District Council	A. J. Jackson, Engineer, Gasworks, Padiham.
" 5	Burton-upon-Trent—Overhead Equipment of Tramways	Corporation	Kincaid, Waller & Manville, 29 Great George Street, Westminster.
" 6	Cromer—Well	Urban District Council	J. C. Melliss, 264 Gresham House, Old Broad Street, London, E.C.
" 8	Newcastle-upon-Tyne—Engine	Tramways Committee	A. E. Le Rossiquol, General Manager, Manors Power Station, Newcastle-upon-Tyne.
" 8	Swindon—Pumping Plant	Corporation	Borough Surveyor, Town Hall, Swindon, Wilts.
" 8	Huntingdon—Alterations at Waterworks	Urban District Council	R. E. Midleton, 17 Victoria Street, Westminster.
" 12	West Hartlepool—Trenching	Gas and Water Co.	Martin & Fenwick, 1 Park Place, Leeds.
" 14	St. Petersburg—Electric Traction on Tram Lines	Stadt Amt (Town Council)	Stadt Amt, St. Petersburg, Russia.
" 14	Leeds—Aqueduct Tunnel	Corporation	City Engineer, Leeds.
" 18	London, S.E.—Laying Electric Tramways	London County Council	Engineer's Department, County Hall, Spring Gardens, S.W.
" 18	London, S.E.—Electric Crane	London County Council	County Hall, Spring Gardens, S.W.
" 19	Enniscorthy, Ireland—Fuel Economiser		Resident Medical Superintendent, District Asylum, Enniscorthy.
" 28	Sunderland—Electric Plant	Corporation	J. F. C. Snell, Town Hall, Sunderland.
" 28	Burton-on-Trent—Inclined Retort Plant	Corporation	F. L. Ramsden, Manager, Gas & Electricity Light Works, Burton-upon-Trent.
" 29	Manchester—Reconstruction of Bridge		City Surveyor, Town Hall, Manchester.
" 30	Shanghai—Electric Lighting	British Municipal Councils	Office of the Board of Trade, 50 Parliament Street, S.W.
Dec. 2	Adelaide, South Australia—Harbour		Agent-General for South Australia, 1 Crosby Square, London.
" 10	Harwich—Dredging Harbour	Harbour Conservancy Board	T. Miller, 9 Thoroughfare, Ipswich.
" 13	Madrid—Canal Reservoir		Office of the Ministry of Agriculture, Commerce and Public Works, Madrid.
" 15	Monte Video, Uraguay—Sanitary Works	Uraguayan Government	Consulate-General of Uraguay, Edinburgh Mansions, Howick Place, Victoria Street, S.W.
" 20	Alexandria, Egypt—Steamer		Inspector of Irrigation, Third Circle, Alexandria.
	FURNITURE:		
Oct. 31	Pontefract—Chairs, Tables, &c.	Workhouse Guardians	W. A. Glover, Clerk, Union Offices, Pontefract.
Nov. 1	Edinburgh—Furniture	Corporation	R. Morham, City Architect, P.W.O., City Chambers, Edinburgh.
" 10	South Brent, Devon—Furnishing Sanatorium		J. Walling, Bedford Street, Plymouth.
" 14	Wimbledon—Furniture	Public Library Committee	H. W. Bull, Librarian, Public Library, Hill Road, Wimbledon.
	IRON AND STEEL:		
Oct. 30	Swadlincote—Roof	Urban District Council	G. B. Smedley, Gen. Mgr., Gasworks, Swadlincote, Burton-on-Trent.
Nov. 1	Coleraine, Ireland—Railings, &c.	Urban District Council	Town Surveyor, Town Hall, Coleraine.
" 4	Coalville, Leics—Pipes	Urban District Council	J. B. Everard, 6 Millstone Lane, Leicester.
" 4	Glasgow—Name and Number Plates	Corporation	T. Nisbet, Master of Works, City Chambers, Glasgow.
" 4	London, W.—Fire Plug Plates, W.I. Railings, &c.	Acton Urban District Council	D. J. Ebbetts, 242 High Street, Acton.
" 5	Watford—Wrought-iron Fencing	Urban District Council	D. Waterhouse, 14 High Street, Watford, Herts.
" 5	Padiham—Ironwork	Urban District Council	A. J. Jackson, Engineer, Gasworks, Padiham.
" 8	Dublin—Railway Stores	Gt. Northern Rly. Co. (Ireland)	T. Morrison, Secretary, Amiens Street Terminus, Dublin.
" 14	Swindon—Fence		Borough Surveyor, Town Hall, Swindon.
	PAINTING AND PLUMBING:		
Nov. 3	London, E.—Painting, Cleaning, &c.	Metropolitan Asylums Board	T. D. Mann, Clerk, Board's Offices, Embankment, E.C.
" 8	Dublin—Colours, Brushes, Varnishes, Lead Oil, &c.	Gt. Northern Rly. Co. (Ireland)	T. Morrison, Secretary, Amiens Street Terminus, Dublin.

COMPLETE LIST OF CONTRACTS OPEN—*continued.*

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDERS MAY BE OBTAINED.
	ROADS AND CARTAGE:		
Oct. 30	Newport, Somerset—Road		W. C. Oliver, Architect, Barnstaple.
,, 30	New Brompton, Kent—Materials	Gillingham U.D.C.	F. C. Boucher. Clerk, Gardiner Street. New Brompton.
,, 30	Ramsgate—Tar Paving	Corporation	T. G. Taylor, Borough Surveyor, Albion House, Ramsgate.
,, 30	Southend-on-Sea—Making-up	Corporation	Borough Surveyor. Southend.
,, 30	Peterborough—Granite	Town Council	J. W. Walshaw, City Surveyor, Guildhall, Peterborough.
,, 31	Salterhebble, Halifax—Paving, &c.		Jackson & Fox, Surveyors, Rawson Street, Halifax.
,, 31	Middleton, Lancs—Paving, &c.	Corporation	Borough Surveyor, Town Hall, Middleton.
Nov. 3	Hastings—Brooms and Brushes	Corporation	P. H. Palmer, Borough Engineer, Town Hall, Hastings.
,, 3	Guildford—Brooms, Brushes, &c.	Town Council	C. G. Mason, Borough Surveyor, Tuns Gate, Guildford.
,, 3	Belfast—Setts	Harbour Commissioners	G. F. L. Giles, Harbour Engineer, Belfast.
,, 3	Elgin—Road Metal		A. Hogg, 24 Academy Street, Elgin.
,, 4	London, W.—Artificial Stone Paving	Acton U.D.C.	D. J. Ebbetts, 242 High Street, Acton.
,, 4	Mansfield—Making-up, &c.	Town Council	Borough Surveyor, Mansfield.
,, 4	Tredegar, Mon.—Road, &c.		R L. Roberts, Architect, Abercarn.
,, 5	Hove, Sussex—Road-making, Paving, &c.	Corporation	H. H. Scott, Borough Surveyor, Town Hall, Hove.
,, 5	Gelligaer, Wales—Materials	Rural District Council	W. Bevan, Highway Surveyor, Deri, near Cardiff.
,, 10	Brighouse, Yorks—Road Works		S. S. Haywood, Borough Surveyor, Brighouse.
,, 10	Blaengwynfi—Private Street-improvement Works	Glyncorrwg U.D.C.	W. P. Jones, Surveyor, Council Offices, Cymmer, Port Talbot.
,, 11	Llanmartin, Wales—Improving Highway	Magor R.D.C.	I. Thomas, Clerk, Union Offices, Queen's Hill, Newport, Mon.
,, 11	Dartford—Making-up, &c.	Urban District Council	W. Harston, 8 Hythe Street, Dartford.
,, 12	Northallerton Road, &c.	Rural District Council	Fairbank & Son, Engineers, Lendal Chambers, York.
,, 17	Swindon—Traction Wagon		Borough Surveyor, Town Hall, Swindon.
,, 24	Middlesbrough—Flags and Kerbs	Corporation	Borough Engineer, Municipal Buildings, Middlesbrough.
	SANITARY:		
Oct. 30	Barnstaple—Sewers, &c.		W. C. Oliver, Architect, Barnstaple.
,, 30	Dumfries—Sewerage Works	Town Council	W. A. Carter, 5 St. Andrew's Square, Edinburgh.
,, 30	Sedgefield—Sewerage Works	Rural District Council	D. Balfour & Sons, 3 St. Nicholas Buildings, Newcastle-on-Tyne.
Nov. 3	Dartmouth—Sewers, &c.	Town Council	A. Smith, Borough Surveyor, Dartmouth.
,, 3	Slough—Sewer		J. Baker, 75 High Street, Slough.
,, 3	Guildford—Drain Pipes, &c.	Town Council	C. G. Mason, Borough Surveyor, Tuns Gate, Guildford.
,, 3	Woodford, Essex—Sewer, &c.	Urban District Council	W. Farrington, Surveyor, Council Offices, Woodford Green.
,, 4	Mistley, Essex—Removal of Refuse	Tendring R.D.C.	A. J. H. Ward, 42 Church Street, Harwich.
,, 4	West Molesey—Sewers, &c.	Urban District Council	J. Stevenson, Engineer, District Council Offices, East Molesey.
,, 4	Cannock, Staffs—Sewage-Disposal Works	Urban District Council	C. R. Walker, 25 Victoria Street, Westminster.
,, 5	Merthyr and Tydfil—Urinals, Sewer, &c.	Gelligaer R.D.C.	J. P. Jones, Surveyor, Council Offices, Hengoed, viâ Cardiff.
,, 8	Dublin—Sewer Pipes, &c.	Gt. Northern Rly. Co. (Ireland)	T. Morrison, Secretary, Amiens Street Terminus, Dublin.
,, 10	Brighouse, Yorks—Sewering	Corporation	S. S. Haywood, Borough Engineer, Brighouse.
,, 10	Walsall—Sewer	Rural District Council	F. W. Mager, District Surveyor, Aldridge, Walsall.
,, 11	Market Harborough—Sewers	Rural District Council	J. B. Everard, 6 Millstone Lane, Leicester.
,, 24	Lewes—Sewer	Town Council	Borough Surveyor, Town Hall, Lewes.
Dec. 15	Monte Video—Sanitary Works	Government of Uruguay	Uruguay Legation, London.
	TIMBER:		
Oct. 30	London, E.C.—Timber, &c.	London Gen. Omnibus Co., Ltd.	Manager of Coach Factory, 235 Upper Street, Islington, N.
Nov. 8	Dublin—Timber	Gt. Northern Rly. Co. (Ireland)	T. Morrison, Secretary, Amiens Street Terminus, Dublin.

List of Competitions Open.

DATE OF DELIVERY.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Nov. 1	Allahabad—Memorial to Queen Victoria	2,000 Rs.	H. N. Wright, Indian Civil Service, Allahabad, India.
,, 29	Ramsgate—Technical Schools and Free Library	£50, £25, £15.	T. G. Taylor, Borough Surveyor, Albion House Ramsgate.
Dec. 1	Arundel, Sussex—Laying-out Land	£50, £20.	A. Holmes, Town Clerk, Arundel.
,, 1	Chadderton—Free Library		G. Taylor, Clerk to U.D.C., Town Hall, Chadderton.
,, 2	Holyhead—Schools and Teacher's House		R. E. Pritchard, Clerk to School Board, Holyhead.
,, 12	Eccles—Laying-out Area for Workmen's Dwellings	£50, £30, £15.	W. H. Hickson, Town Clerk, Town Hall, Eccles.
,, 18	Durban, Natal—Town Hall, Library, Museum, &c.	£500, £300, £200.	W. H. Radford, Albion Chambers, King Street, Nottingham.
,, 31	Ashton-in-Makerfield—Infectious Diseases Hospital	Urban District Council	T. Burgess, Surveyor, Council Offices, Ashton-in-Makerfield.
Jan. 31	Cape Town—University Buildings	£400, £200, £100.	Agent-General for the Cape of Good Hope, London.
,, 31	Hull—Town Hall Extension	£300, £200, £100.	E. Laverack, Town Clerk, Town Hall, Hull.
Feb. 13	Patras, Greece—Church	£400, £160, £80.	Committee for new Church of St. Andrew, Patras, Greece.
No date.	Motherwell, Scotland—Formation and Laying-out of Cemetery	£10, £5, £2 10s.	J. Miller, Inspector of Poor, Parish Council Offices, Motherwell.
,,	Wavertree—Church	£50.	E. Rogers, Crossley Buildings, South Castle Street, Liverpool.

Current Market Prices.

FORAGE.

		£	s.	d.	£	s.	d
Beans	per qr.	1	15	0	2	0	0
Clover, best	per load	4	15	0	5	10	0
Hay, best	do.	4	10	0	5	0	0
Sainfoin mixture	do.	4	10	0	5	5	0
Straw	do.	1	10	0	2	4	0

OILS AND PAINTS.

Castor Oil, French	per cwt.	1	3	11		—	
Colza Oil, English	do.	1	5	3		—	
Copperas	per ton	2	0	0		—	
Lard Oil	per cwt.	2	13	0	2	14	0
Lead, white, ground, carbonate	do.	1	4	10		—	
Do. red	do.	1	0	4½			
Linseed Oil, barrels	do.	1	5	0		—	
Petroleum, American	per gal.	0	0	5¼	0	0	5
Do. Russian	do.	0	0	4⅛	0	0	5⅛
Pitch	per barrel	0	7	0		—	
Shellac, orange	per cwt.	5	13	0	5	14	0
Soda, crystals	per ton	3	2	6	3	5	0
Tallow, Home Melt	per cwt.	1	11	0		—	
Tar, Stockholm	per barrel	1	0	0		—	
Turpentine	per cwt.	1	17	4½	1	17	6

METALS.

Copper, sheet, strong	per ton	67	0	0		—	
Iron, Staffs., bar	do.	6	10	0	8	10	0
Do. Galvanised Corrugated sheet	do.	11	7	6	11	10	0
Lead, pig, Soft Foreign	do.	10	16	3		—	
Do. do. English common brands	do.	11	0	0		—	
Lead, sheet, English 3lb. per sq. ft. and upwards	per ton	13	10	0		—	
Do. pipe	do.	14	0	0		—	
Nails, cut clasp, 3in. to 6in.	do.	9	5	0		—	
Do. floor brads	do.	9	0	0		—	
Steel, Staffs., Girders and Angles	do.	5	15	0	6	5	0
Do. do. Mild bars	do.	6	10	0	7	0	0
Tin, Foreign	do.	119	10	0	120	0	0
Do. English ingots	do.	121	0	0		—	
Zinc, sheets, Silesian	do.	24	0	0		—	
Do. do. Vieille Montagne	do.	24	0	0		—	
Do. Spelter	do.	19	5	0	19	10	0

TIMBER.

SOFT WOODS.

Fir, Dantzic and Memel	per load	1	13	0	3	0	0
Pine, Quebec, Yellow	per load	5	5	0	6	5	0
Do. Pitch	do.	2	17	0	3	13	0
Laths, log, Dantzic	per fath.	4	10	0	5	10	0
Do. Petersburg	per bundle	0	0	8		—	
Deals, Archangel 2nd & 1st per P.Std.		9	15	0	24	15	0
Do. do. 4th & 3rd	do.	9	0	0	15	15	0
Do. do. unsorted	do.	5	12	6	6	10	0
Do. Riga	do.	6	15	0	12	10	0
Do. Petersburg 1st Yellow	do.	16	5	0		—	
Do. do. 2nd ,,	do.	9	0	0	12	10	0
Do. do. White	do.	7	5	0	12	10	0
Do. Swedish	do.	5	15	0	15	5	0
Do. White Sea	do.	13	5	0	17	5	0
Do. Quebec Pine, 1st	do.	16	5	0	22	5	0
Do. do. 2nd	do.	13	0	0		—	
Do. do. 3rd &c.	do.	9	10	0	11	0	0
Do. Canadian Spruce 1st	do.		—		12	10	0
Do. do. 3rd & 2nd	do.	10	0	0	10	10	0
Do. New Brunswick	do.	7	5	0	8	0	0
Battens, all kinds	Per P. Std.	6	0	0	16	0	0
Flooring Boards 1in. prepared, 1st	per square	0	10	0	0	11	3
Do. 2nd	do	0	8	6	0	10	3
Do. 3rd &c.	do	0	7	3	0	8	

HARD WOODS.

Ash, Quebec	per load	3	17	6	5	15	0
Birch, Quebec	do.	3	12	6	3	17	6
Box, Turkey	per ton	15	0	0	20	0	0
Cedar, Cuba	per ft. sup.	0	0	3¾	0	0	5

New Companies.

George Wragge, Ltd.

Registered with a capital of £30,000 in £1 shares (15,000 preference) to acquire the business now carried on at Wardry Works and the Crafts, Chapel Street, Salford, Lancs, and at 211, Shaftesbury Avenue, W.C., as George Wragge, and to carry on the business of manufactures of and dealers in metal, wooden and other fittings, fixtures and articles, enamels, mosaics, stained and leaded glass, &c. The first directors are G. Wragge and G. Ermen. There is no public issue of shares, the conversion of the business into a limited company being due merely to family reasons. The staff is retained in its entirety.

Tenders.

Information from accredited sources should be sent to "The Editor" at latest by noon on Monday if intended for publication in the following Wednesday's issue. Results of Tenders cannot be accepted unless they contain the name of the Architect or Surveyor for the work.

Addressed postcards on which lists of tenders may be stated will be sent post free on application to the Manager, BUILDERS' JOURNAL, *Effingham House, Arundel Street, Strand, W.C.*

Aber Bargoed (Wales).—For the erection of fifty houses in Aber Bargoed. Mr. G. Kenshole, architect, Station Road, Bargoed:—

H. R. Paul, Bargoed	£9,000 0
W. Thomas & Co., Cardiff	8,950 0
R. Jones, Abertridwr	8,875 0
J. Williams, Abertridwr	8,550 0
J. Davies, Aber Bargoed	8,350 0
J. James & Sons, Penygraig	8,290 0
W. Morris, Bargoed	8,147 10
C. Sara, Cardiff	8,000 0
Thomas & Hughes, Llanbradach	7,875 0
W. Williams & Sons,* New Tredegar	7,737 10

* Accepted.

Basford.—For works of forming, draining, kerbing, &c., in five streets at Ilkeston Junction, for the Basford Rural District Council. Mr. G. W. Hawley, surveyor, York Chambers, King Street, Nottingham:—

S. Richmond & Co., Nottingham	£1,295 1 7
S. Thumbs, Nottingham	1,199 9 4
Cox & Son, Ilkeston	1,136 14 6
Thraves & Son, Stapleford	1,103 19 10
T. Smart, Nottingham	1,082 10 0
G. Goode, Nottingham	1,053 6 3
Hawley & Son,* Wood Street, Ilkeston	1,029 10 0
Cope & Raynor, Nottingham	1,029 6 7
W. A. Walker, Derby	1,019 0 1
W. Cordon, Beeston	1,015 9 7

* Accepted.

Birchington-on-Sea.—Accepted for the erection of a pair of semi-detached houses, for Mr. J. C. Pidgeon. Mr. H. Payne Wyatt, architect, 124 Brixton Road, S.W.:—

A. Braun, Goodmayes, Essex £1,512

[Exclusive of fittings.]

Cwmbran (Wales).—For road works at Cwmbran, for the Llantarnam Urban District Council. Messrs. B. Lawrence & Son, architects, Newport:—

Road.

Meredith & Co.	£3,196 0 0
L. R. Lucas	2,256 3 0
Leadbeter Brothers	2,242 0 0
W. A. Linton	2,165 0 0
Davies (whole tender)	2,150 0 0
Geen & Linton	2,134 15 3
D. Parfitt	1,887 0 0
H. C. Parfitt	1,770 0 0
C. H. Reed*	1,733 0 0

Bridge.

L. R. Lucas	256 19 6
Meredith & Co.	198 0 0
D. Parfitt	180 0 0
Geen & Linton	171 3 8
H. C. Parfitt	168 0 0
W. A. Linton	148 0 0
Leadbeter Brothers	123 0 0
C. H. Reed*	121 0 0

Fence.

Meredith & Co.	822 10 0
W. A. Linton	485 0 0
Leadbeter Brothers	484 0 0
Geen & Linton	480 10 0
D. Parfitt	470 0 0
C. H. Reed*	445 0 0
H. C. Parfitt	444 0 0
L. R. Lucas	395 15 0

* Accepted.

Farnborough.—For the construction of sewerage and sewage-disposal works within their district, for the Farnborough Urban District Council. Mr. J. E. Hargreaves, engineer:—

Contract No. 1.—General work.

G. Kemp, Aldershot	£18,340
Martin, Wells & Co., Aldershot	14,800
Gotterton & Co., East Molesey	12,856
F. W. Trimm, Eastleigh	12,573
W. Lee & Sons, Wycombe	12,319
J. Jackson, Forest Gate, E.	12,108
Johnson & Langley, Leicester	11,791
B. Cooke & Co., Westminster	11,698
G. G. Rayner, Croydon	11,567
G. Bell, Tottenham	11,379
J. & T. Binns, Croydon	11,278
J. Harris, Basingstoke	10,945
Streeter & Todhunter, Godalming	10,498
W. H. Wheeler,* Blackfriars Road, S.E.	10,152

Contract No. 2.—Engineering work.

Hughes & Lancaster,* Westminster	6,148

Engineer's estimate, Contracts 1 and 2, £17,500.

* Accepted.

Grays (Essex).—For the erection of a working-men's social club. Mr. Christopher M. Shiner, architect, 6, 7 and 8, Crutched Friars, E.C.:—

G. Brown	£1,218 0
Pavitt	1,216 0
Carter	1,039 0
Brightmore	1,019 0
J. Brown*	1,008 15

* Accepted.

Hunstanton, Norfolk.—For work at the Le Strange Arms Hotel, Hunstanton, Norfolk. Mr. Herbert J. Green, architect, 31 Castle Meadow, Norwich:—

F. Giddings, St Ives, Hunts	£7,639
Renant Brothers, King's Lynn	6,840
P. Banyard, Cambridge	6,691
Reuben Shanks, Chatteris, Cambs	6,295
Youngs & Son, Norwich	6,170
John Cracknell, Peterboro'	6,095

King's Lynn.—For alterations and additions to Thurlow House, King's Lynn. Mr. Herbert J. Green, architect, 31 Castle Meadow, Norwich:—

Renant Brothers, King's Lynn	£2,494
Robert Dye, King's Lynn	2,401
John Cracknell, Peterboro'	2,276
Reuben Shanks, Chatteris, Cambs	2,250

London.—For the erection of new school, Sandhurst Road, for the London School Board. Mr. T. J. Bailey, architect:—

T. L. Green	£26,748
W. Downs	26,279
Patman & Fotheringham, Ltd.	25,376
W. Johnson & Co., Ltd.	25,023
W. J. Mitchell & Son	24,825
E. Lawrance & Sons	24,813
G. E. Wallis & Sons	24,682
Stimpson & Co.	24,460
C. Miskin & Sons	24,425
J. Smith & Sons, Ltd.	24,379
J. & C. Bowyer	24,299
Treasure & Son	24,083
F. & H. F. Higgs	23,983
J. Garrett & Son	23,896
J. Marsland & Sons	23,662
J. & M. Patrick	22,982
Holliday & Greenwood, Ltd.*	22,925

* Recommended for acceptance.

London.—For the erection of manual training centre, &c., at Brownhill Road School, for the London School Board. Mr. T. J. Bailey, architect:—

F. & H. F. Higgs	£3,438
Rice & Son	3,343
W. J. Mitchell & Son	3,295
E. P. Bulled & Co.	3,293
J. Appleby	3,256
Holliday & Greenwood, Ltd.	3,183
E. Lawrance & Sons	3,178
J. & C. Bowyer	3,135
Treasure & Son	3,122
J. Smith & Sons, Ltd.	3,115
Johnson & Co.	3,107
T. D. Leng	3,004
W. Johnson & Co., Ltd.	2,961
J. & M. Patrick	2,920
J. Garrett & Son	2,912
Thomas & Edge*	2,760

* Recommended for acceptance.

London.—For improvements to infant school, Bonner Street, for the London School Board. Mr. T. J. Bailey, architect:—

H. Wall & Co.	£3,270
Snewin Brothers & Co.	3,160
W. M. Dabbs	3,147
W. Gregar & Son	3,047
W. Shurmur & Sons, Ltd.	3,033
Marchant & Hirst	2,978
J. Grover & Son	2,962
Patman & Fotheringham, Ltd.	2,952
C. Cox	2,886
McCormick & Sons	2,794
E. Lawrence & Sons	2,747
G. S. S. Williams & Son	2,629
C. Dearing & Son	2,512
Treasure & Son*	2,444

* Recommended for acceptance.

London.—For sanitary and drainage works at Hawley Crescent School, for the London School Board. Mr. T. J. Bailey, architect:—

G. Godson & Sons	£2,921 0 0
C. W. Killingback & Co.	2,884 0 0
Marchant & Hirst	2,751 0 0
Maxwell Brothers, Ltd.	2,662 0 0
McCormick & Sons	2,589 0 0
Johnson & Co.	2,401 0 0
G. Neal	2,274 0 0
G. S. S. Williams & Son	2,206 0 0
J. Peattie	2,159 10 0
R. P. Beattie	2,155 5 5
F. Bull*	2,126 0 0

* Recommended for acceptance.

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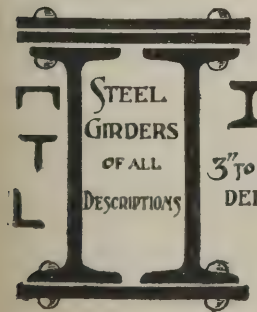
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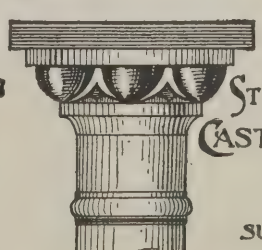
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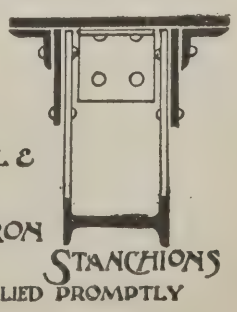


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London, S.E.—Accepted for the erection of a detached house and small stable at Sunray Avenue, Herne Hill, S.E., for Mr. E. Müller. Mr. H. Payne Wyatt, architect, 124 Brixton Road, S.W.:—

W. D. Palmer, 75 Dulwich Road, S.E.	£2,514

London.—For the erection of physically defective centre for 40 children (two classrooms of twenty each) at Surrey Square School, for the London School Board. Mr. T. J. Bailey, architect:—

Rice & Son	£2,887 0
J. Garrett & Son	2,849 0
F. & H. F. Higgs	2,755 0
E. P. Bulled & Co.	2,687 0
W. Smith & Son	2,660 0
J. Greenwood	2,610 0
W. Downs	2,607 0
W. H. Lorden & Son	2,555 0
W. Johnson & Co., Ltd.	2,551 0
Lathey Brothers	2,487 0
Stimpson & Co.	2,450 0
J. Outhwaite & Son	2,418 0
Johnson & Co.	2,412 10
T. D. Leng	2,341 4
J. Marsland & Sons*	2,331 0

* Recommended for acceptance.

London.—For enlargement of Old Woolwich Road School, for the London School Board. Mr. T. J. Bailey, architect:—

Killby & Gayford	£1,946 0
J. Appleby	1,903 0
T. L. Green	1,839 0
W. H. Lorden & Son	1,788 15
Rice & Son	1,784 0
E. P. Bulled & Co.	1,755 0
F. & H. F. Higgs	1,753 0
J. Smith & Sons, Ltd.	1,742 0
J. Garrett & Son	1,729 0
J. Greenwood	1,670 0
W. Johnson & Co., Ltd.	1,661 0
J. & C. Bowyer	1,646 0
E. Triggs	1,580 0
T. D. Leng*	1,520 0

* Recommended for acceptance.

Newport.—For the erection of "The Rising Sun," Shaftesbury Street, for Mr. Richard Mann. Messrs. B Lawrence & Son, architects, Newport:—

Blackburn	£2,898
C. H. Reed	2,850
J. Hooper	2,850
R. H. Parkyn	2,800
Linton & Co., Ltd.	2,799
J. Charles	2,748
Jerrett & Fisher	2,700
J. J. Partridge	2,649
Morgan & Co.	2,599
Leadbeter Brothers	2,549
Richards, Ltd.	2,494
E. C. Jordon*	2,475

* Provisionally accepted.

Newport.—For erection of new laboratory, lecture-room and classrooms at the Newport Intermediate Schools, for the Board of Governors. Messrs. B. Lawrence & Son, architects, Newport:—

J. Linton	£1,599
C. H. Reed	1,500
W. H. Blackburn	1,579
Leadbeter Brothers*	1,447

* Accepted.

Newport (Monmouthshire).—For the erection of the Newport Borough Lunatic Asylum at Caerleon, Monmouthshire. Mr. A. J. Wood, architect, 22 Surrey Street, Victoria Embankment, W.C. Quantities by Messrs. Widnell & Trollope, 20 Tothill Street, Westminster, S.W.:—

J. McCormick	£123,288	Turner & Sons	£109,250
Kerridge & Shaw	118,410	J. Allan & Sons	109,000
Charles Wall	117,000	W. King & Son	108,218
Watkin Williams	116,990	H. Willcock & Co.	107,875
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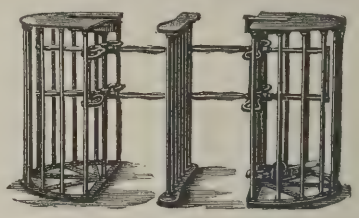
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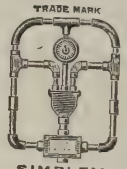


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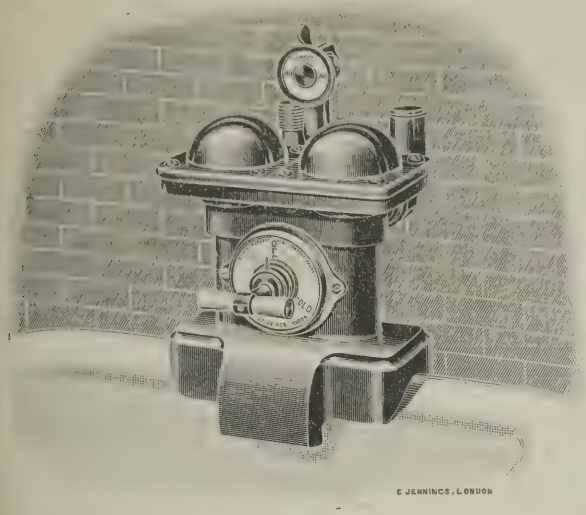
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TENDERS—*cont.*

St. Albans.—For erection of an infants' school at the Camp, St. Albans, for the St. Peter Rural School Board. Mr. F. W. Kinneir Tarte, St. Albans, architect. Quantities by the architect :—

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E. Dunham, Victoria Street	1,280 0 0
Hammond & Sons, St. Peter's Street	1,207 13 9
C. Miskin & Sons,* Romeland	1,175 0 0

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Sutton (Surrey).—For erection of house, Mulgrave Road, Sutton, for Mr. G. E. Bromage. Mr. Cecil Sharp, architect, 11 Old Queen Street, Queen Anne's Gate, S.W. :—

Huntley Brothers	£3,387
F. Clarke	3,350
W. J. Baker	2,500
J. B. Potter	2,274
E. J. Burnand*	2 203

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Torquay.—For alterations and additions to Nos. 79 & 81 Union Street, for the Torquay Co-operative Society, Ltd. Messrs. Bridgman & Bridgman, A.R.I.B.A. and M.S.A., architects, Torquay and Paignton. Quantities by Mr. Vincent Cattermole-Brown, Paignton :—

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R. F. Yeo & Sons	2,999 11 3
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Coming Events.

Wednesday, Oct. 29.

SANITARY INSTITUTE (Lectures and Demonstrations for Sanitary Officers, Part I.).—Mr. J. Wright Clarke on "Details of Plumbers' Work," 7. p.m. Inspection and Demonstration at L.C.C. Common Lodging-house, Parker Street, Drury Lane, W.C., at 3 p.m.

Thursday, Oct. 30.

SANITARY INSTITUTE (Lectures and Demonstrations for Sanitary Officers, Part I.).—Demonstration of Book-keeping as carried out in a Sanitary Inspector's Office, in the Parkes Museum, at 7 p.m., by Mr. Albert Taylor.

INSTITUTE OF BUILDERS.—Dinner at the "Walnut Rooms," Grand Hotel, Charing Cross, W.C., 6 p.m.

INSTITUTION OF JUNIOR ENGINEERS.—Visit to the Headquarters of the Electrical Engineers (R.E.) Corps of Volunteers. Demonstration with Search Light Apparatus, &c.

Friday, Oct. 31.

ARCHITECTURAL ASSOCIATION.—Conversazione at the Royal Institute of Painters in Water Colours, at 8 p.m.

SANITARY INSTITUTE (Lectures and Demonstrations for Sanitary Officers, Part I.).—Prof. R. Elsey Smith, A.R.I.B.A., on "Building Materials," 7 p.m.

INSTITUTION OF MECHANICAL ENGINEERS.—Discussion on Captain C. C. Longridge's paper on "Oil Motors of 1902," 8 p.m.

Saturday, Nov. 1.

BRITISH INSTITUTE OF CERTIFIED CARPENTERS.—Meeting at Carpenters' Hall, London Wall, E.C., at 6 p.m.

GLASGOW AND WEST OF SCOTLAND TECHNICAL COLLEGE SCIENTIFIC SOCIETY.—Mr. W. Benison Hird, B.A., on "Comparison of Alternating and Continuous Currents for different purposes," 7.30 p.m.

Monday, Nov. 3.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.—First General Meeting (Ordinary). Opening Address by the President, Mr. Aston Webb, A.R.A.

SOCIETY OF ENGINEERS.—Ordinary Meeting at 7.30 p.m.

LIVERPOOL ARCHITECTURAL SOCIETY.—Mr. S. Pugin Powell on "Heraldry," 6.30 p.m.

LONDON INSTITUTION.—Prof. W. M. Flinders Petrie on "The Earliest Kings of Egypt," 5 p.m.

SANITARY INSTITUTE (Lectures and Demonstrations for Sanitary Officers, Part I.).—Prof. R. Elsey Smith, A.R.I.B.A., on "Sanitary Building Construction and Planning," 7 p.m.

Tuesday, Nov. 4.

MANCHESTER SOCIETY OF ARCHITECTS (Students' Meeting).—Mr. C. H. Potter on "The Necessity of Imitation in in Art."

INSTITUTION OF CIVIL ENGINEERS.—Inaugural Address by the President, Mr. J. C. Hawkshaw, M.A. Presentation of Awards, 8 p.m.

Wednesday, Nov. 5.

ARCHITECTURAL ASSOCIATION (Discussion Section).—Mr. H. Munro Cautley on "The Buildings about a Farm," 7.30 p.m.

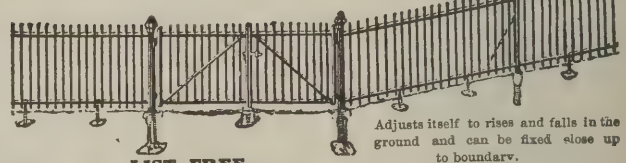
RUSKIN SOCIETY OF BIRMINGHAM.—Mrs. Craigie on "The Artist's Life," 7.45 p.m.

SANITARY INSTITUTE.—Inspection and Demonstrations for Sanitary Officers in the District of St. Marylebone at 3 p.m., conducted by Mr. T. Gorniot.

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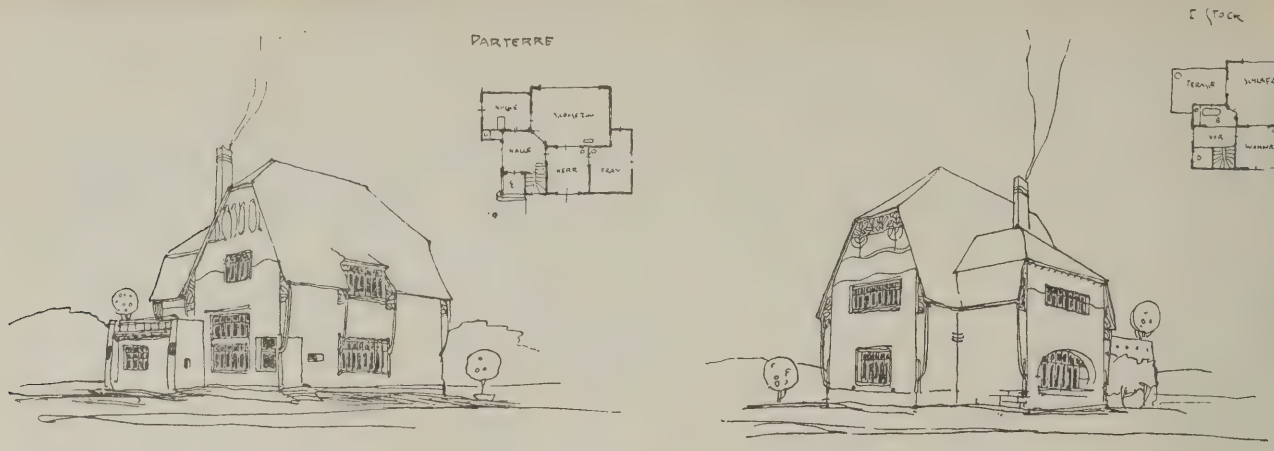
An Architectural Causerie.

Pall Mall. There is one street in western London which is pre-eminently "Italian"; this is Pall Mall. There is little characteristically English about it, but an air of stateliness pervades the street, due to the fact that the designs of its principal buildings were suggested by well-known palaces in Italy. It arose at a time when a sort of unwritten compromise prevailed in the matter of styles; churches were occasionally quasi-Classic, but more often in revived Gothic; town halls and law courts wholly Classic; country houses and colleges late Gothic or Elizabethan; clubs "Italian." The choice was a good one for the luxurious structures of Clubland. Where could the architecture of stately ease be better sought than in Italy, and in what period than the Renaissance? The result was a line of palaces of which London may be proud. Unfortunately the street is much too narrow and some parts of it are commonplace; the effect, as a whole, is nevertheless very dignified. The name was derived from the old French game of *paille maille*, which consisted of striking a ball through a high arch of iron at either end of an alley; it was played in the adjoining Mall. The first building is the Athenæum Club, designed by Decimus Burton, to whom we owe the colonnaded gateway and arch at Hyde Park Corner. The clubhouse is stately and severe, well suited to balance Nash's United Service Club on the opposite side. The architect's name is rarely mentioned now, and the fate of his buildings has been, in an artistic sense, a sad one, for his great group at Hyde Park Corner has been destroyed by setting back the arch—and neither that nor the colonnade is crowned with statutary as he intended them to be—whilst the Athenæum has lately been injured by the addition of an upper storey, recessed slightly it is true, but marring Burton's design. Next to it stands the Travellers' Club, by Sir Charles Barry, its design suggested by the Pandolfini Palace at Florence, compact and well proportioned. Then the Reform, considered to be his finest work. Here too it is said that another palace, the Farnese in Rome, was to some extent reproduced; the building is certainly grand; the interior is famous for its fine hall, which is practically "an Italian *cortile* covered over." The Carlton, which adjoins it, is the work of Sidney and Robert Smirke; here the Library of St. Mark at Venice inspired the design, but there are two great differences to be noted: the Venetian building—one of whose angles was destroyed by the fall of the great Campanile—is grey in colour and long and low in form; the English palace is loftier, more compact and decorated with coloured granite—it may fairly be described as a coloured building. The Oxford and Cambridge Club is also by the Smirkes; it has been altered by the removal of the open balustrade which crowned it. On the other side, the Army and Navy Club—known in the services as "the Rag"—was suggested by the Palazzo Corner at Venice. The Junior Carlton, designed by Raphael Brandon, is another Italian Renaissance design, and completes the list. Some attempt has been made of late years to introduce a lighter and more fanciful architecture into this street, and the new departure is exemplified by the quaint red building with high gables at the corner of St. James's Street. At the other extremity, opposite the Athenæum, rebuilding has commenced, and it is to be hoped that some "courtesy of architecture" will be observed in this, the newest addition to the famous little street of palaces.



SIR JOSEPH TERRY MEMORIAL ALMSHOUSES, YORK. ARTHUR J. PENTY, ARCHITECT.

Another Competition Complaint. Architects mean to get their rights by competition and we are glad to see the Associations taking such active steps on their behalf. Willy-nilly, competitions are the means adopted to-day for securing designs of public buildings: they have their advantages and their evils, but the latter are chiefly brought about by the abuse of competitions. There is another complaint against them on p. 196 of this issue, where it will be seen what the Edinburgh Architectural Association has done in regard to the Leith Poorhouse Competition. The conditions form curious reading. They do not describe all the requirements: they require the plans to show how, "in the event of the whole or part of the space to be set apart for a particular class of inmates not being required for that class, it might be utilised for another class, effective classification being, however, still maintained"—which is quite unintelligible to us: they do not state how much the buildings are to cost, but require an estimate first for stone and then for brick: they only suggest the possibility of a professional assessor being appointed; and, lastly, they offer the successful architect a commission of 3 per cent., into which his premium of £100 is to merge. Architects have to live, and, strange though it be to the Leith Parish Council, none of them can make much out of 3 per cent. on an ordinary building. The reply which the Edinburgh Architectural Association received is bluntly negative. We should like to see the same kind of answer given by architects themselves: then, with practically no designs to consider, the Leith Parish Council might doubt its wisdom and omnipotence.



A LITTLE HOUSE BY J. M. OLBRICH.

THE NEW ARCHITECT.

THERE could be nothing "newer" than the wonderful designs which now take shape in Germany, and as so many general references have been made to the "Art" they exemplify, it will doubtless be of some interest to illustrate a few of the worst specimens that have come to our notice. We at once admit that those now shown are among the *worst* we have seen, and while quite alive to the fact that our own architects are not without blemish—indeed, some of them are very piebald—yet these examples emphasize what modern German domestic work is largely tainted with, what astonishing forms are introduced into it, and how novelty is everything and fitness or sanity nothing.

Look, for instance, at the dwelling-house at Steglitz, near Berlin, illustrated below. Could anything be more abusive of proportion? And it is to be noted that this is not a flagrant example of the "New Art" but an everyday design influenced by it, the designer having neither the ability nor the madness of some of his brother architects. Apart from such details as the front door exhibits, or those quaint acorns poised 'tween heaven and earth on needle-like spirelets, what a senseless arrangement of roofs is adopted, what distressing gables, what buttresses at the front corners of the house!—needless, ugly, foolish: but there is no necessity to draw any more attention to such a design; for altogether it harmonises with the gentleman in check trousers who occupies a position to the right of the view and bears a striking resemblance to a music-hall knockabout.

Next we come to the little house by J. M. Olbrich. Now Olbrich is one of the leading men on the Continent in this "New Architecture," and though his work is generally astounding in its general effect there are qualities and features in it both pleasing and skilful. This architect is an Austrian, but for the present we must expand Germany to include Austria, as the characteristics of the new creations of each are alike. Olbrich was a pupil of the celebrated Austrian architect, Otto Wagner, whose work was dealt with and illustrated in the BUILDERS' JOURNAL for November 27th, 1901, but he has nothing of his master's regard for what is beautiful and what is sane: he is a wild artist playing at architecture, a man whose tenet it is to build for futurity and not for the present. Maybe he is a seer and we are children in his hands, but, living in the present, we have to judge with what the present gives us, and therefore cannot appreciate Olbrich's creed that, though people may not like his buildings now, the children who grow up in them will be cultivated by his colourings and have their artistic conceptions moulded by the influence of his forms. We say we cannot appreciate that view of things. It sounds inspiring and noble, but "ein kleines haus" by Olbrich makes us lose faith in his talk. They are only outline sketches that are reproduced here, but what strange fancies confront us! What are those things that dangle from the eaves? They surely cannot be brackets—if they are they are absolutely foolish—and if they be down-pipes, how can one reconcile them with windows and walls? Probably they have no practical use—they are "motifs" which we cannot understand: perhaps our children may.



A "MODERN" VILLA.
MEIER AND WERLE ARCHITECTS, BERLIN.



A DWELLING-HOUSE AT STEGLITZ, BERLIN. G. FRANZKE, ARCHITECT.

Now look at two more houses by the same architect, built for the Grand Duke Ernst of Hesse-Darmstadt as part of his "Artists' Colony." Take the house of the artist Christiansen (see p. 192). There is certainly a feeling of healthiness and cleanness in those white plastered or rough-cast walls, but whatever can we make of that serrated base or of the "antifixæ" which stand up all along the roof edge—those at the lower edges might perhaps stop snow falling, but what shall be said of the others, which look like so many pimples? Then that kind of verandah with its swirling lines. Lastly—and worse of all—that altogether atrocious excrescence where the decorator has been at work. The folly of it is appalling, and its indecency equally astonishing.

There are somewhat similar characteristics in the House Keller (see p. 192). Here also are the plain white wall-surfaces exhibiting a good deal of refinement. The stair window, too, is treated well, though we hardly see why it should have been spoiled by stepping the

bottom. But what is that strange treatment across the gable top, with a useless pediment above it; and how are the roofs to be kept water-tight? And the railings! It is plain writ that the architect is striving for novelty at any cost; novelty he gets, and ugliness with it.

The "modern villa" by Meier and Werle (on the opposite page) is another wonderful design. Very little need be said of it, for all its faults are apparent. It is, however, a good example of the absurd manner in which roofs are commonly treated by modern German architects. It is easy to draw these roofs on paper; it is not so easy to carry them out, or, when they are carried out, to make them keep out the rain. But perhaps we are supposed to regard them as something else, something greater than mere protectors from bad weather.

We next come to the shooting-box at Heinrichshorst near Magdeburg, and it is so bad that one hardly knows where to begin. Suppose we start at the porch, under which that elegant carriage is passing. What a porch! It seems to be Indo-Swiss in feeling, with just a touch of Chinese here and there and something on the roof which we cannot quite make out—as much like a Curtain Road looking glass as the top of a lectern. The main tower of the house reminds one somewhat of the earlier Eddystone light-houses. Of what the other turrets or spirelets reminds anyone it would be hard to say, but the energetic stork is certainly very quaint, and the several beasts are equally amusing. The house seems to have a variety of occupants.

Next we will look at the villa outside Munich (see below). It is much less rampant than some of the others, but it still has strange features enough—that sliced-up front gable and the side gable with the scalloped outline, and that curved bay window which merges mysteriously into the roof below it.

Finally, so far as domestic work is concerned, we have a niche in one of the smaller rooms at the Dresden Exhibition (see p. 195). Here is the New Art in one of its best moods. Wriggles and the "scriggilums" are still plentiful, but there is a great deal of freshness in this design, and the decorated cove with those children drawing circles on it is very charming. The fault about the whole is that it is overdone; but, still, it shows what is possible even in this "Art Nouveau," and we give it as a contrast to the other outrageous work. They are all modern, but in this little niche there is a sanity and a charm which the other work does not possess.



A SHOOTING-BOX NEAR MAGDEBURG, GERMANY. J. GROS, ARCHITECT.

We may now consider some examples of modern street architecture abroad. First there is the trading-house No. 36, Mohrenstrasse, Berlin (see p. 195). Here is a new feature, not shown in any of the other houses, but very commonly adopted by the new school of German architects, namely, huge carved female heads. It is of no use to talk about canons of architecture, or recognised rules or conventions—these architects will have none of them: their creed is novelty, to be modern, new, wonderful. And so we have these gigantic heads, larger than the seated figures above them! As for the plate glass and those thin stone pillars, we need say nothing.

Let us pass to another street front—Nos. 46-49, Leipzigerstrasse, Berlin—a sort of German Crystal Palace (see p. 195). Here again is the same utter disregard for proportion in the figures, the same writhing and twisting and curling forms, and, above all, that great lintel held up by four floors of plate glass. Some bad things have been done in this country in the way of plate glass, but, so far as we know, there is nothing to equal this.

Look again at the art-workshop at Leipzig illustrated on p. 193. Here is the same curling and writhing; and when the whole design begins to be analysed, what senseless practices it exhibits! Where, for instance, is the sense in making the third-floor window of that shape? And what proportion is there between the parts?

Lastly, what shall be said of the Dresden building illustrated on p 194? Simply that, with such a treatment, the use of plate glass is hideous.

Thus, then, we see what private houses and street fronts can be produced by modern German and Austrian architects.

It is most lamentable work, but, be it remembered, these men are not producing it for fun—would they were!—and their mad influences come back to us. There are many new motives in it, but these are so exaggerated and so functionless that they offend all sensible persons and get their authors looked upon as novelty-madmen.

(To be concluded.)



A VILLA OUTSIDE MUNICH, BAVARIA. M. DÜLFER, ARCHITECT.



THE HOUSE KELLER, DARMSTADT, GERMANY.
J. M. OLBRICH, ARCHITECT.

HOUSING.

Municipal Builder and Private Builder.

IN his sixteenth article on municipal socialism the "Times" correspondent says :—

The chief argument adduced in favour of municipal house-building is that private enterprise has failed to do more than provide the working classes with slums, and that "the helpful hand of the municipality is indispensable." Private enterprise, says a writer in a Socialist newspaper, which furnishes its readers with such arguments almost week by week, "has had all the chances in years past, and what has it made of them? Rash speculation, jerry-built slumdom and the woeful want of housing accommodation confronting us everywhere." To this it must be replied that private enterprise has in no way been restricted to the provision of slums; that it has done far more to supply cheap and healthy house accommodation for artisans and labourers than it gets credit for; that the effect of municipal action has too often been to check rather than to encourage; and that in the case of London, at least, there would probably by this time have been as many tenements available for the working classes if the London County Council had not sought to "help" at all as have been added through the "enterprise" of that particular body . . . .

Such is the position in regard to the cost of building artisans' dwellings at the present time that although housing companies and trusts, managed on business lines, secure profits ranging from 2½ to 4 or 5 per cent. (as compared with the losses too often sustained on municipal dwellings), it is morally certain that if any new company were to start operations within a reasonable distance of the City of London it would not be able to earn more than about 2½ per cent. . . .

The check given to trusts and companies has naturally been ever keener in the case of individual builders, with smaller resources to fall back on; but when one bears in mind what enormous collections of small-house property have sprung into existence of late years in the neighbourhood of Edmonton, Walthamstow and other districts, converting hamlets into populous towns, there is still further reason for suggesting that private enterprise has done much more than the advocates of municipal house-building are willing to give it credit for.

The scope for municipal action would seem to be more in the direction of a vigorous application, wherever possible, of the powers possessed under Part II. of the Housing of the Working Classes Act in preference to a resort to the excessive, if not extravagant, expenditure involved in the application of Part. I.; and in the direction also of allowing the fullest possible scope to independent effort for the provision of fresh house accommodation wherever private enterprise is prepared to exert itself, while still willing to accept conditions consistent with the public health and well-being. In London especially the housing provision for the working population is, taken as a whole, so bad and dear that anything which great companies and private builders can do is of value to the community in helping to remove the congestion and the insanitary conditions in which so many of the people live. Such independent effort should meet with every possible encouragement instead of the most serious discouragement. In many cases municipal authorities have assumed too readily that there was no hope that private enterprise would take action, and different results might often have been brought about if they themselves had given a greater degree of encouragement to outsiders, granting easier terms, modifying requirements, or relaxing particular by-laws or building regulations where such a course could be pursued to the advantage of the builder, on the one hand, and without really prejudicing the healthy conditions or the general stability of the building, on the other. The ideal arrangements would be one under which the municipality enforced its legal powers for dealing with insanitary property, and facilitated in every practical way the operations of private enterprise, especially as regards the granting of building sites on the lowest possible terms, and the concession of some further relief in regard to building regulations, only itself taking action where or when there was absolutely no chance that independent action would meet undoubted requirements. Such a scheme as this would do far more towards the solution of the housing problem than the present system of municipal competition, which threatens to leave upon the hands of local authorities the entire obligation of providing dwellings for the artisan and labouring classes.

On Wednesday last Mr. Edmund Barnes, Mayor of St. Pancras, laid the foundation-stone of Goldington buildings, a block of working-class dwellings which are about to be erected at the corner of Great College Street, Pancras Road. The mayor said that the site had cost £6,500, and the contract accepted for the building amounted to £17,734. They did not anticipate that any charge would fall on the rates for these buildings. Captain Jessel, M.P., said they had heard a good deal about municipal socialism. They were told that municipalities, in dealing with these matters and taking upon themselves the housing of the working classes, were taking away work that properly belonged to private enterprise. He was associated with Sir Thomas Wrightson in a scheme for the furthering of the objects of the Bill to enable working men to buy their own houses, and he would say that in this great question there was plenty of room for municipal enterprise and private enterprise as well.



THE HOUSE CHRISTIANSEN, DARMSTADT, GERMANY. J. M OLBRICH, ARCHITECT.

WATER SUPPLY.

Deputation to Mr. Walter Long.

ON Wednesday last a deputation representing the County Councils Association, the Sanitary Institute, the British Association of Waterworks Engineers, and the Underground Water Preservation Association waited on Mr. Long, President of the Local Government Board, at Westminster Hall, on the protection of our sources of water supply in England and Wales, urging the pressing necessity for an enquiry into the existing state of the law.

Mr. Long said three questions had been put before him—pollution, waste and water-rights. With regard to pollution, there was a Royal Commission now sitting, and one of their recommendations was: "We are of opinion that the general protection of our rivers is a matter of such grave concern as to demand the creation of a separate Commission, or a new Department of the Local Government Board, which should be the supreme river authority dealing with matters relating to rivers and their purification, which, when appeal is made to them, shall have power to take action when the local authorities failed to do so." How far the deputation would consider that recommendation covered not merely rivers but other sources of water supply, it was not possible for him to say, but he did not think it was in the least probable that they would have put forward that recommendation only to sources of supply which were drawn from rivers. He hoped to hear from the Commissioners as to the views they took of their own powers with reference to pollution; and if they held that they were precluded from enquiring into the general question of pollution, then it might be necessary to include it in any further enquiry, if that should be decided on. He believed the Commissioners held that their powers were ample to enable them to enquire into surface water and its treatment in order to render it pure, and generally to examine into the position of surface water in this country. If that were so, that would dispose of an enquiry into the pollution question. Then there was the question of waste, the evidence of which did not justify him in asking for a Royal Commission to enquire into it. But with regard to the general question of water rights there was no doubt that the general position of the law as to the protection of existing rights and their proper use for public benefit, and the practice of local authorities in acquiring those rights, was in a very unsatisfactory condition. No doubt it was the case that local authorities, in their desire to supply their own districts with water, frequently entirely deprived adjoining districts of water which naturally belonged to them. With reference to the ownership of underground or surface-water rights, there was no doubt the owners were surrounded by privileges which did not attach to the ownership of other classes of property, and this was a question for enquiry and possibly for legislation. Then, with regard to the whole question of water rights and the general law as to the provision of water, there was a point which had not been touched upon, namely, the power of local authorities to secure that everybody within their area should have a proper supply of pure water. The law already provided machinery for that, but he was afraid there were a good many districts in the country where the water supplied was neither sufficient in quantity nor pure in quality. That was an unsatisfactory state of things which ought to be remedied. He was largely in sympathy with the objects of the deputation, but he desired further time to go into the whole question berore deciding whether the matter should be referred to a Royal Commission.

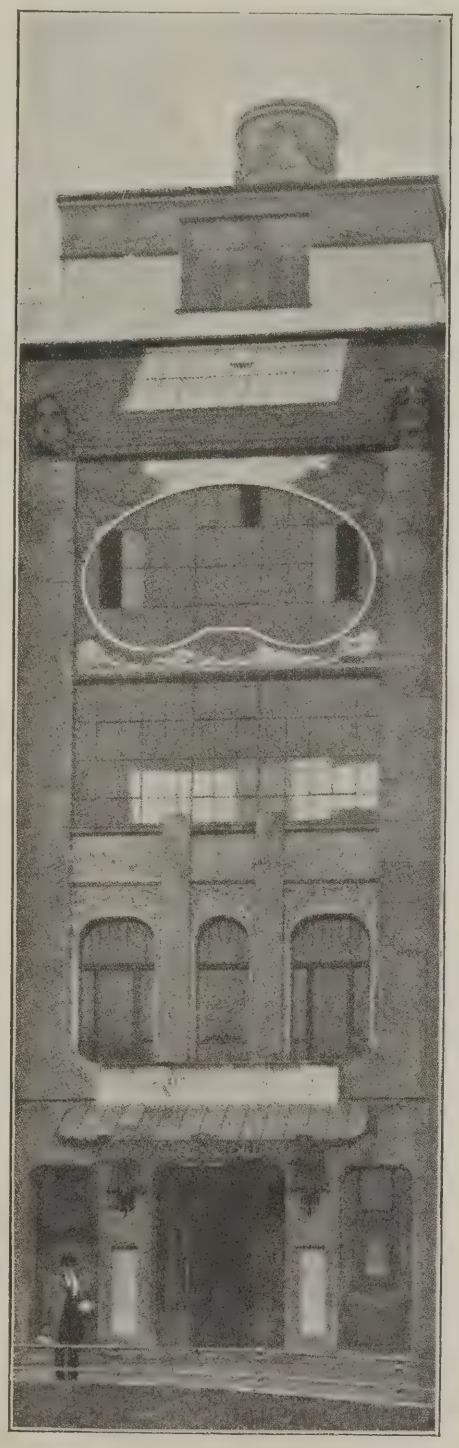
THE LONDON OF A PAST CENTURY.

A MOST interesting article by the Rev. W. J. Loftie, B.A., F.S.A., appeared in the "Morning Post" in connection with the King's procession through London. The following are some extracts from the article:—

The Marble Arch.

On the 5th of June sixty-four years ago the London papers announced that Queen Victoria left Buckingham Palace at twenty minutes to four the previous afternoon, and proceeded to Windsor. If we had read that the Queen left the Park by the Marble Arch we should have thought no more about it, or else should have assumed that she passed through Hyde Park, and, emerging on the north side, had gone on to Paddington or along the Uxbridge Road. But her Majesty did neither. If we remember that Buckingham Palace was at that time as George IV. had left it, that the present stucco front by Blore had not been built, that the Marble Arch stood then and till 1851 in the place for which it was originally designed by Nash, namely, as an entrance to the courtyard—a space, with the palace and its wings on three sides, which was once occupied by a fountain in which Neptune and a harem of nymphs disported themselves—and that the young Queen, whose carriage was followed by three others, all with four horses, emerged from the palace by the Marble Arch and entered the Green Park, we should have attained a clearer view of this particular historical vignette. It may be worth noting here that King Edward VII. is the first king who has lived ostensibly at Buckingham Palace. William IV. never used it. George IV. rebuilt it in great part, and had but just got into habitable repair the year before his death . . . .

But the best fronts of the present Palace look on the gardens, and were designed by Nash for George IV., and the best interiors by Wyatt. . . . Blore's design for a new front is very unsatisfactory. The removal of the Marble Arch was unfortunate in every way. It had been designed more or less closely after the Arch of Constantine at Rome, and was intended to bear sculpture by the best artists then to be had. Rossi (whose Rodney monument in St. Paul's is so deservedly admired) and Flaxman carved the bas-reliefs and the figures of angels in the spandrels: a statue of King George was to have been on the top, but was never completed. In the moving to Cumberland Gate Parker's beautiful cast-iron gates are said to have been carelessly carried in a common cart, so that the semicircular panel under the arch was so much broken that it has never been set up in its place. Enough remains to be admired as the most important work of the kind in England, even excelling the gates of Venice, of which we have heard so much of late. Now that the national monument to Queen Victoria is to stand in front of the Palace, we cannot but wish anything so worthy as the Marble Arch was in place of the present plastered and painted apology for a piece of regal architecture.



WORKSHOPS AT LEIPZIG, GERMANY.
F. DRECHSLER, ARCHITECT.

Marlborough House.

There are artistic as well as historical associations connected with the residence for so many years of King Edward and Queen Alexandra, and now of the Prince and Princess of Wales. The house, built by Wren, in the same simple but well-proportioned style which he employed at Tring Park and many other places, was, like the Tring manor-house, much disfigured by the addition of an attic by some architect who did not take the trouble to use Wren's figures. A painted staircase showing Marlborough's victories. by Laguerre, was long hidden, but forms almost the only original decoration left. But the house has other and perhaps better artistic associations, for here, after the death of Queen Adelaide, to whom it had been appropriated as a dower house, the School of Design, set up after the Great Exhibition of 1851, was established.

Dover House; The Admiralty; and Charles the First's Statue.

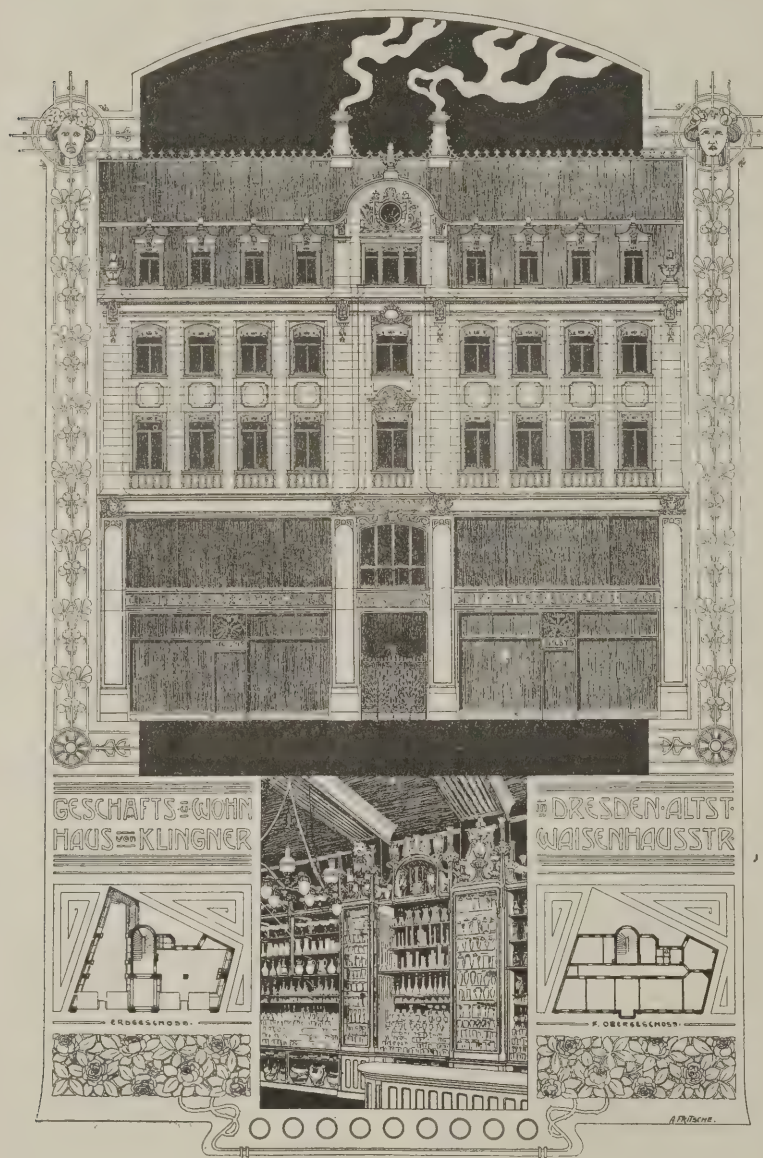
On emerging from the Abbey Church after the Coronation the King and Queen took a somewhat different road back to Buckingham Palace. Returning through Parliament Street, the Horse Guards were passed, and beyond it a house which is of interest both architecturally and on other grounds. It is now the Scottish Office, but is still usually called Dover House. The low dome and portico are in a good style, by Henry Holland, and were added to an older house built by James Paine in 1758. The Admiralty stands

behind a screen decorated with sea monsters. The screen, which was designed by Adam, is handsome, but Ripley's portico within cannot be admired.

As we reach Trafalgar Square we pass the statue of Charles I. by Hubert Le Sœur. It had been cast, but never set up, when the troubles of the Civil War broke out. It was then sold to a dealer in brass in Seven Dials, who had the foresight to keep it intact until the Restoration. He showed pieces of the same kind of metal, and even made some money by selling articles supposed to be cast from the fragments. In 1674 he was, rather unwillingly, it is said, induced to part with the statue, which was set up where Charing Cross had formerly stood. While Queen Victoria was on her way to the Royal Exchange in 1844 someone in the crowd contrived to steal King Charles's sword, which was loose, and it has never been replaced. Another king's statue is in Cockspur Street, Wyatt's George III.

The Reign of Stucco.

The whole of the district at the eastern end of Pall Mall has been greatly changed of late years. Warwick Street and the houses fronting towards Cockspur Street have been rebuilt. Carlton House has disappeared, as well as the great stucco Opera House. A new hotel, handsomely built of stone, faces into both Pall Mall and the Haymarket, and is called after the Prince's Palace. Improvement is also busy in Waterloo Place and the lower reach of Regent Street. The fine plastered and painted house which Nash built for himself has become shops and stores. The craze for cast instead of carved architectural ornament died out very rapidly, and the porticos and pillars, the friezes and capitals which did duty for art are gradually but surely being superseded. In one sense taste was good then, but Portland cement led it away with the help of drab paint. At the time when the fine designs of Nash and Wyatt were made nobody suspected the soundness of the material from the artistic point of view. In some cases fine house fronts in stone, marble and granite have been substituted; yet, from faulty and anomalous designs, they do not look much better than the old stucco.



R. SCHLEINITZ, ARCHITECT.

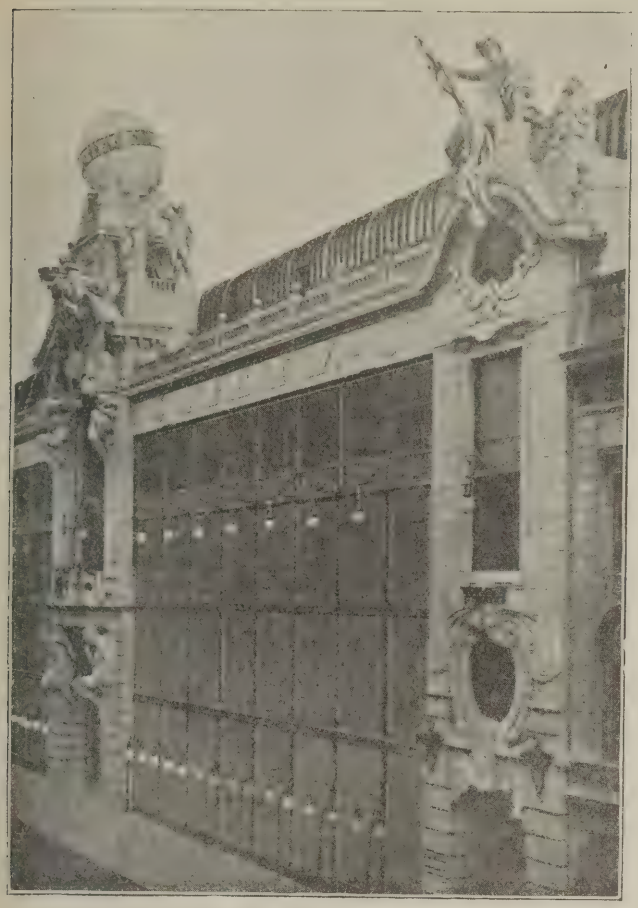
A Primitive Methodist Chapel and Sunday School at Port St. Mary is being erected. Local stone with limestone dressings is being used. The chapel is 49ft. long by 36ft. wide and will provide accommodation for 320 persons. The sole contractor is Mr. J. W. Corrin, of College Green, Castletown; and the architects are Messrs. Robert Todd and Thomas Morris, junr., of Gresham Chambers, Lord Street, Southport.

Law Cases.

An Architect Charged with Fraud.—At the Southend Petty Sessions last week, William Allen, architect and surveyor, of Delaford, Southend-on-Sea, was remanded on a charge of obtaining by fraud large quantities of bricks from Peterborough, Plaistow and other places, afterwards disposing of them at ridiculously low prices. Inspector Brown proved the arrest, and said the prisoner was drunk and violent. The prisoner was offered bail by the magistrate, but indignantly refused it.

Quarrying Sandstone: Interesting Case. — Judgment was delivered last week in the case of *Greville and Another* v. *Hemingway*, heard in the King's Bench Division of the High Court of Justice. The plaintiffs, Lord Greville and the Earl of Westmoreland, brought their action as the trustees of the late Earl of Cardigan to recover from Mr. Wilson Hemingway, stone merchant, Dewsbury Moor, Dewsbury, damages for trespass, and to obtain an injunction restraining the defendant from working and cutting stone on the Cardigan estate. It appeared that in 1889 a portion of the Cardigan estate was offered for sale by auction, and the defendant then purchased a lot of land at Woodkirk, in the parish of West Ardsley, Yorks. Another lot of land at the same place was also acquired at the sale by the Atlas Brewery Co., but subsequently the defendant purchased the company's interest in that plot. The conveyances to the defendant and to the Atlas Brewery Co. reserved to the trustees all "the mines, beds and quarries of coal and ironstone and other minerals, including fire-clay." The plaintiffs complained, however, that in spite of that reservation the defendant and his son, and also the Woodkirk Brick and Stone Co., acting under his authority, had worked for and got sandstone from under the land. Therefore, they said, they were entitled to the relief they claimed. The defendant's case was that sandstone and building stone were not included in the reservations in the conveyances. The question for the Court was whether sandstone came within the meaning of the words "other minerals," which were not, the defendant said, used in their widest sense. It was also said that the plaintiffs had acquiesced in the working of the sandstone, and as to some of the acts complained of defendant pleaded the Statute of Limitations. Defendant also relied on the conditions of sale as showing that sandstone was not included in the minerals reserved.—The Lord Chief Justice came to the conclusion that there must be a declaration that the defendant was not entitled to work the sandstone, and an injunction restraining him and persons claiming under him from doing so. There was, he said, some evidence that at one time the plaintiffs knew of or acquiesced in the working of the sandstone, but he had come to the conclusion that any licence, if given, was determined. He assessed the damage for the stone worked without the consent or licence of the trustees at £40, and also gave the plaintiffs costs. A stay of execution with a view to an appeal was granted.

Defective "Dogs" on a Crane: Damages, £125.—At the Halifax County Court recently George Herbert Hall's brought an action against Messrs. J. Charnock & Sons, contractors, for £250 damages, due to alleged negligence on their part. Council for plaintiff stated that his client was employed as a teamer for Messrs. Jagger Brothers, quarry owners, Ambler Thorn. The defendants were carrying out extensions at the tramway depôt in Skircoat Road for the Halifax Corporation, and required a number of "footings"—large stones. They contracted with



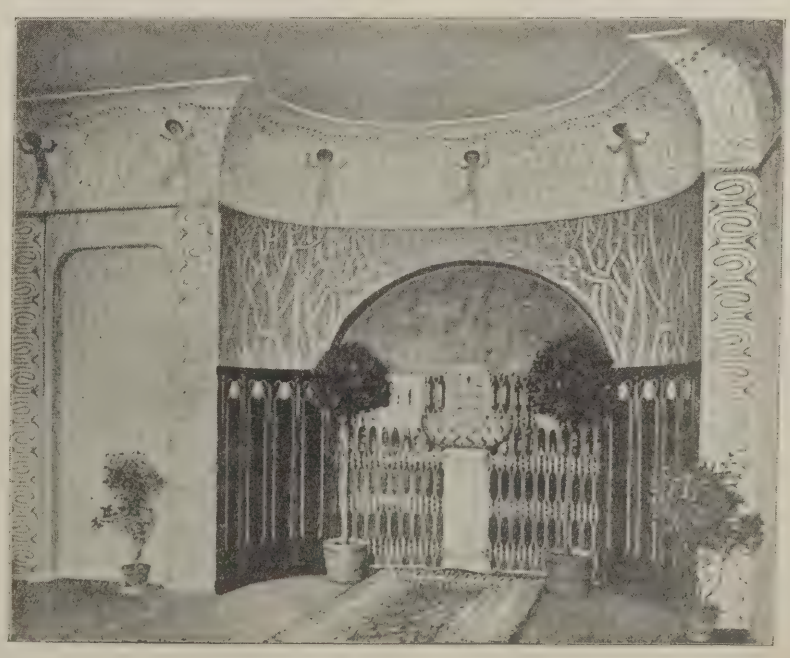
SHOP PREMISES, NOS. 46-49, LEIPZIGERSTRASSE, BERLIN.
B. SHERING AND L. LACHMANN, ARCHITECTS.



BUSINESS PREMISES, NO. 36, MOHRENSTRASSE, BERLIN.
OTTO RIETH, ARCHITECT.

Messrs. Jagger to supply them with these footings, and on October 8th, 1901, plaintiff went to the depôt with three large blocks of stone. "Dogs" were applied to the stone and it was lifted by the crane. Plaintiff helped to push the stone to a position indicated by defendants' workmen, but while doing so one of the "dogs" broke and plaintiff was pinned by his right arm with a stone weighing nearly a ton. He was taken to the infirmary, where his hand was amputated. Counsel contended that the law was perfectly clear. If people were invited to visit premises, there was a duty cast upon the owners to take reasonable care by examination, test, &c., that the machinery was in good working order. It was perfectly obvious from the "dog" (produced) that it was not fit to be used, because there was a flaw in it. Plaintiff was earning £1 4s. a week at the time of the accident, and he was out of work twenty-nine weeks and did not earn anything, so thereby he lost in actual cash £34 16s. He had been reinstated as a driver but not as a teamer, and by this he lost £7 16s. a year.—Mr. John Goodman, professor of engineering at the Leeds and Yorkshire College, called for the defence, said he had examined the "dog" in question, but could find no flaw in it whatever. There was a dent, he would acknowledge, but this certainly did not indicate a flaw running through it. As a practical man he could find nothing to indicate that the "dog" would not lift a ton.—The jury found that the defendants were guilty of negligence in allowing the "dogs" to be worked, and gave a verdict for plaintiff of £125, with costs.

A Case Concerning Air-Spaces.—At Consett last week Jonathan Green, of West Stanley, was charged upon six summonses with infringing the building by-laws. It appeared that in March last the defendant submitted plans for the erection of a number of dwelling-houses in Chester Road, East Stanley, and these conformed to the by-laws in allowing a distance of 10ft. between them and the yard wall. After six of the houses were in course of construction, the plaintiff discovered that he had made a mistake and had only allowed a lateral space of 8ft. 11in. He took no notice of communications from the surveyor and the Council's clerk asking him to remedy the defect, which could be done at a cost of £1 per house. The defence was that hitherto the by-law in question had not been rigidly enforced and the Council had asked the Local Government Board to modify it so as to allow a distance of 8ft. only between the house and the boundary wall. The Council having offered to withhold further proceedings if the defendant would only reconstruct the premises so as to comply with the by-laws, the case was adjourned for two months to allow the defendant to carry out the recommendation.



A NICHE IN ONE OF THE ROOMS AT THE DRESDEN EXHIBITION.

Sunderland Building By-Laws: A Test Case.—On October 28th at the Sunderland Police Court a case of considerable interest to builders was heard. Mr. J. W. White, building contractor, was summoned by the Corporation for unlawfully erecting a new building in Colchester Terrace, and of which the party walls were constructed of a less thickness than 9in., as required by the by-laws sanctioned by the Local Government Board. The town clerk (Mr. J. M. Bowey) explained that the present by-laws were passed on June 6th last, and superseded all others, except in the case of buildings commenced before the date they came into force. Mr. White commenced building on July 17th, and when his attention was called to certain methods employed said he would build according to the old by-laws, and not to the new, and that he would give the Corporation the opportunity of having a test case. For the defence, counsel relied mainly on the contention that the words in the by-law exempting work commenced included the laying-out of the streets, drawing up the plans, &c., even though the actual work of erecting the dwelling was not begun. The Bench decided that the words referred only to the subject-matter of the by-laws, and imposed a fine of 20s. and costs. On the application of defendant's counsel they agreed to state a case.

LEITH POORHOUSE COMPETITION.

Action taken by the Edinburgh Architectural Association.

WE have been requested to publish the following correspondence in reference to the competition for a new poorhouse at Leith:—

From the Edinburgh Architectural Association to the Clerk to the Leith Parish Council.

Dear Sir,

Some of the members of the Edinburgh Architectural Association have brought before the Council of that body the general instructions and conditions to be observed in the preparation of competitive plans issued by the Leith Parish Council, and have more particularly directed attention to clauses 10, 11, 12, 13 and 14, and pointed out certain conditions which they consider unsatisfactory.

The Council has now carefully examined the clauses referred to, and begs to lay the following suggestions before the Parish Council with a view to making the conditions more equitable to competitors and more likely to lead to satisfactory designs being sent in, and to the most suitable plans being adopted for such an important range of public buildings.

(1) *Clause* 10.*—The labour involved in preparing the drawings to a scale of $\frac{1}{8}$in. to the foot is very great, and would be of no advantage to the Parish Council or its assessor in deciding on the best design. A scale of $\frac{1}{16}$in. to the foot is suggested.

(2) *Clause* 11.†—It is suggested that the best method to arrive at the relative cost of the various designs is to place the premiated designs in the hands of a competent surveyor to report.

(3) *Clause* 12.‡—The premiums are small, and might reasonable be increased in number and amount. £150, £100 and £75 are suggested.

(4) *Clause* 13.§—While no objection can be raised to the Parish Council protecting itself in the event of the buildings not being proceeded with, it is not considered reasonable for competitors to risk so much labour and expense in the preparation of designs without an assurance that one of their number will be employed to carry out the work if it is gone on with. It is suggested further that the name of the neutral architect should be given now, so that competitors may know beforehand his position and standing in the profession.

Further, it would be more satisfactory that the Parish Council should employ the best skill possible to assist them, and that the decision of the assessor should be adhered to; and in the event of the author of the design to which the first premium is awarded being able to satisfy the Joint Committee as to his ability, fitness and experience to act in the capacity of architect for the proposed buildings, he will be duly appointed in that capacity.

(5) *Clause* 14.**—The commission to be paid should be 5 per cent. on the cost, and this sum should cover the services as detailed in the enclosed schedule as prepared by the Royal Institute of British Architects, and which forms the usual basis for the charges of architects both here and elsewhere.

It would further be more equitable if the premium did not merge in such commission, as the cost of preparing competitive plans is so much greater than for the usual sketch designs.

In submitting these suggestions the Council of this Association take the liberty of enclosing a set of conditions issued for an important competition by another public body, the terms of which received general approval. As bearing upon the points raised in this letter, attention is directed to clauses 1, 2, 3, 8 and 13 in these conditions.

We shall be glad if you will lay this letter before the Parish Council, and trust that they will give full weight and effect to these views of the Council of the Edinburgh Architectural Association.

Yours faithfully,
(Signed) A. HUNTER CRAWFORD,
Hon. President.
(Signed) WILLIAM M. PAGE,
October 2nd, 1902. Hon. Secretary.

From Mr. James Miles, Inspector, Leith Parish Council, to the Hon. Secretary of the Edinburgh Architectural Association.

Dear Sir, *New Poorhouse.*

I submitted your letter of the 2nd curt., with relative enclosures, to a meeting of this Council yesterday, when I was instructed to inform you that the Council is not prepared to reconsider the general instructions and conditions therein referred to.

I am, &c.,
(Signed) JAS. MILES,
October 14th, 1902. Inspector.

Clause 10.*—Each design is to be illustrated by a block plan $\frac{3}{8}$in. to 10ft., and plans, elevations, and sections of the several buildings to a uniform scale of $1\frac{1}{4}$in. to 10ft., together with such other drawings, details and perspectives as the author may consider necessary to illustrate the design. Perspective drawings not to exceed 30 by 22, and to be in black and white and entirely without colour. All others are to be in black and white only. The block plan must show the entire extent of the ground, with the buildings in their relative positions, and the lines of carriage and footways, and also the drainage system.

Clause 11.†—Each design is to be accompanied by a fully detailed description, more particularly as to the heating and ventilation arrangements, and other matters of detail, and an estimate of the probable cost of erecting the buildings in stone and also in brick, including allowances for all requisite details of structure, finishings, fittings and fixtures, and everything necessary for the due completeness of the establishment, but excluding cost of movable furnishings, painting, laying-out of ground and planting; also architect's, measurer's and inspector's fees. The buildings to be of substantial construction, well-finished, and otherwise of becoming character, both externally and internally, but avoiding all unnecessary expense on ornamentation. The matter of cost will form an important element in deciding on the merits of the plans.

Clause 12.‡—Premiums of £100 and £50 respectively shall be awarded by the Council to the designs adjudged to be first and second in order of merit.

Clause 13.§—The Council do not bind themselves to employ either the architect whose design may be adjudged to be the best or any other competitor. In awarding the premiums and selecting an architect the Council may obtain the assistance of a neutral architect.

Clause 14.**—The architect selected by the Council to carry on the work will be paid for all professional services a commission of 3 per cent. on the measured cost of the buildings as executed, which commission will include the value of any premium to which he may be entitled.

Masters and Men.

Strike of Joiners and Plumbers.—Last Thursday the whole of the joiners and plumbers employed in the shipbuilding yards on the north-east coast came out on strike in opposition to the employers' demand for a 5 per cent. reduction in wages.

The Newcastle-on-Tyne Stonemasons have been given six months' notice of the employers' intention to resume the nine-hour day instead of the eight-hour day as at present. The men, although paid by the hour, are generally averse to the proposal.

CLACTON-ON-SEA SCHOOL COMPETITION.

IN his report on the thirty-one designs sent in for the Holland Road School to be built for the Great Clacton School Board, the assessor, Mr. A. W. S. Cross, F.R.I.B.A., says that two were disqualified for contravening the conditions—that by Messrs. Slicer and Blackburn and the design marked "Invicta," the latter because the author's address was given on p. 1 of his report. The assessor considered that the following designs were superior to the others:—"Compact," "Lux," "Bee," "Experience," "VII," "Sunlight," "Empire's Children," "Utility with Economy," "Picturesque" and three designs by "Crowstone." Of these the best, arranged in order of merit, were "Lux," "Crowstone," "Picturesque," "Utility with Economy," "Compact" and "Experience." The assessor continues:—

The author of "Lux" has produced a very compact and inexpensive plan, and although both in draughtmanship and power of design he falls far below the standard set, both by his two immediate competitors and by others, yet, after the preparation of very careful comparative estimates of the three designs placed respectively first, second and third, I feel compelled to give my award in his favour. The author of "Lux" estimates the cost of his design at £9 per head per scholar, or £4,500, but I do not consider, even having regard to its undoubtedly economical treatment, that the design in question—including boundary walls, playgrounds, &c.—can be carried out for less than about £7,000. Architecturally, I prefer design "B." Were it not for the question of cost, I should have placed "Crowstone" first, for although the plan is inferior to that submitted by "Lux," yet, as the perspective view indicates, its elevations could be effectively treated with rough-cast walls and tiled roofs. Its cost, however, which I estimate at about £10,958, is prohibitive. The author of "Picturesque" submits a design of considerable merit, but in view of your instructions that you desire to erect a building suitable for your requirements, but on as economical a plan as possible, I am unable to award this design a higher place. My estimate of its cost is £11,000.

The following are the authors of the six recommended plans:—

(1) "Lux": Mr. T. H. Baker (Clacton-on-Sea and Colchester).

(2) "Crowstone": Messrs. Smee, Mence, & Houchin (London, E.C.).

(3) "Picturesque": Mr. S. Jackson (London, E.C.).

(4) "Utility with Economy": Messrs. Greenhalgh and Brockbank (Southend).

(5) "Compact": Mr. S. J. Adams (Southend.

(6) "Experience": Messrs. Scott & Hanson (London, E.C.).

The School Board have adopted their assessor's recommendation and the author of the first premiated design has been instructed to carry out his design, subject to the approval of the Board of Education. The school is to accommodate 800 children.

THE ART AND TRADE OF HOUSE DECORATION.

By LEWIS F. DAY.

(*Concluded from p. 188 of No. 403.*)

I AM not so sure that the public demand for novelty is so pronounced as it is supposed to be by the tradesman who thinks it such a recommendation. What people do like is to have things that other people have not. They like to go one better than their neighbours; and in offering them something of your own (your own choice, your own combination, if not your own design) you are offering them something that they value. That is recognised by firms who are big enough to have designs reserved to them for the express purpose of being able to call them their own.

I maintain, then, that by not hanging on to the fashion—perhaps only just keeping it in view—by not seeking novelty at any price, not doing just what everyone is doing, a man may make for himself at least as good a business as by going with the crowd, and will be at the same time developing a character of his own in decoration.

Naturally he will perfect himself and his staff in certain ways of work, and make much of this or that class of work. I have no time to indicate the *kind* of speciality a man might cultivate. Whatever it was, he could, being expert at it, do it at a reasonable price.

I have known decorators who made a quite absurd fuss about doing a little bit of stencilling, and put on the price at once for anything they could call "art." I think it would be better business to throw in, if need were, a touch of art, if only by way of advertisement. But I don't pretend to be an authority on business; it may be good policy to charge the utmost farthing for everything, and to recommend to your customer the thing which allows you the largest margin of profit. What I do know is that it is a policy incompatible with art. An artist's policy is always to do the best he can for the money, and to recommend what is best, not what pays him best; and an artist who does not act up to that policy ceases to be an artist and sinks into the mere tradesman.

The position which I have been urging the decorator to take up does not, I said, imply that he should be an artist to begin with; but it does ask something of him, some knowledge of his trade, some devotion to art.

Nothing in the way of art worth having is to be had without that. And this devotion involves some really serious study of the art of decoration. I knew a decorator once who boasted that he had educated himself at the shop windows! That is all very well; but what can they teach him? Mainly what is "going." If, of course, he is only at the bottom of his trade, and he studies the shop windows of those who are at the head of it, he may learn something. But if he accepts that as final, he will not go far. He must educate himself more seriously than that. If he is wise he will haunt not merely the shop windows but the museums, and take every opportunity of seeing decoration old and new—and this not that he may copy it but that he may learn how things have been done, and so be the better able to judge what is the best way to do them. The great advantage in studying old work is, that it has been sifted for us by time; the worst of it has been allowed to perish, and what has been preserved is in the main the best; whereas in the new we have to pick out the good from the bad—sometimes only a little good out of a great deal that is—well, let us say, not likely ever to be preserved in a museum.

And, apropos of education, a decorator ought to know more than he usually does about the technique of the trades subsidiary to his business—wallpaper printing, tile manufacture, glazing or stained-glass, and so on—in order the better to advise his customer and not to incur unnecessary risk. (I know he thrusts that on to the manufacturer as far as possible, but he can't do it altogether.) And it is really pitiable to think of the amount of trouble that is caused by folk, in their ignorance, undertaking to do what is not worth doing, even if it is possible to be done. On the other hand, a man who knows what can and cannot be done in a trade, and what can best and easiest be done, gets the most out of them, and produces an effect very much better than others less well informed can get at the price. It is not so much servility as ignorance which makes a man so ready to say, "Yes sir; certainly, sir; of course, sir; we will do as you please, sir." He cannot warn his customer that an analine stain will surely fade, when he does not know that it *is* analine; nor can he tell him that he chooses the wrong thing at his own risk, which he ought to be able to do. The man who does not know anything of any but one trade only knows that imperfectly.

As to the study of art. Art is such a personal matter that there is no prescribing for a man one fixed course of study; he will go, and he is right to go, in the direction of his bent. All earnest study is to the good. I point especially to old work because it is for the moment the fashion to neglect it, and to make a boast of doing something new. As if anyone could not do something new if he didn't care about its being fit or beautiful, or the kind of thing one could live with!

What, for example, is the merit of emancipating yourself from the idea that a sense of scale is necessary in decoration? And yet one could name a genius or two who have jumped into notoriety by ignoring anything like proportion or scale in their design. Their *drawings* attract attention, as a poster does, by the unaccustomed look about them. The *rooms* they represent must be distracting!

In house decoration a thing of more importance than originality is repose. The "new art" shouts at you wherever it is, and will not leave you in peace. As for originality, there is far too much talk about it and striving after it. Originality does not come of conscious effort, but of our personality; an artist of real originality has only to set out to do the old thing in his own way, and in the doing it becomes somehow original.

To come back to house decoration. What cares your customer about your originality? He wants rooms in which he can live comfortably, to which perhaps he will be confined in sickness. Fancy a lingering illness in a bedroom frantically "up-to-date"! I should say that if a decorator wanted to wreck his business the surest way of doing it would be to overload it with "new" art. (It is all very well, of course, in the decoration of a restaurant or of a public-house, where advertisement is of more account than quiet; but anything less likely to give the impression of *home* it is impossible to imagine.)

It will surprise you, perhaps, to be told by a designer that it is the fashion to make too much not only of originality but of design.

"Every man his own designer" is the cry! In so far as design is what everyone can do, it is not worth bothering about. In so far as it is to be taken seriously, it is only by devoting himself to it that a man even gifted with a rare faculty can hope to succeed.

Designer and executant should always be in touch; the closer in touch they are the better; but they are, with few exceptions, two different men. And it is no wicked taskmaster who has determined this. Human nature will have it so. We must take men as they are. And they are more or less lop-sided. The one man leans towards design; the other, or I should rather say the others, to execution.

There is nothing to prevent an executant from developing into a designer—if he has it in him he will develop into one. It is a good thing for the designer to relax the tension of his mind by a spell of quite mechanical execution. But men are as they are made: on the one hand, nervous, irritable, impressionable, restive, imaginative — designers in fact; and on the other, quiet, steady-going, unimpassioned, perhaps phlegmatic—handicraftsmen. It is absurd to expect either kind to do the other's work, or ask both to do the same. It does not in the least follow that because a man is a good workman he is fit to design, nor *vice versâ*.

We should know ourselves and shape our work according to our capacity—do, in short, what we *can* do.

"Men in their places are the men that stand."

I hope you will not think that I have discussed the art and trade of house decoration from too lofty a point of view.

Certainly I place the calling of decoration high. (I hope you will not quarrel with me for that.) Not every man who writes "decorator" over his shop-front or on his billheads is worthy of the title. He is not really a decorator unless he is something of an artist.

But I am not advocating the high artistic idea of decoration or a standard above the possibilities of trade.

Artists who have served no sort of apprenticeship to the trade of decoration (in which, for all that, they are bold to dabble) take a quite impossible view of what it should be, and have nothing but abuse for it as it is. In this they do not so much prove that they have souls above trade, as that they have minds incapable of grasping the situation or wills not sufficiently under control to submit to unalterable conditions.

The high-talking artist may be in his way a very good artist, but his art is not of the kind that is available in practical decoration.

What I call the *im*practical attitude may be justified in *one* artist out of a thousand. In the other nine hundred and ninety-nine it is not; and their pretended superiority to trade is really inferiority to practical workmanship, upon which they look down. Outside artists do, no doubt, from time to time give a valuable lead to the trade; but they are far too contemptuous of practical conditions to lead it generally or to be safe guides at all.

The problem of practical decoration is to adapt oneself to conditions, of which business is one. And the artists who preach to the contrary misunderstand what decoration is. It is not an independent art. It consists in doing the definite thing to be done—often in making the best of what promises to be a poor job.

And it is nothing less than inflated vanity (swelled head) which prevents a man from finding this a worthy vocation. Who is he that he should expect the world to accommodate itself to him?

To conform to conditions is *not* to lower any reasonable artistic standard. It is neither more artistic nor more honourable to work only according to your own wild will than to do the work that wants doing. The honour and the art alike are in the way you do it. To do the thing that is asked of you, and to make a job of it, is more difficult than to do just what you have a mind to. There is more to be proud of in overcoming stubborn conditions (or in working within them, if that may not be) than in shirking them. It is manlier to earn a living by your trade than to profess an impractical theory of art which prevents your doing so.

The superiority of art to trade (if any) is not that it is free from conditions but that

it imposes upon itself higher conditions than that—acts up to a higher ideal.

Has the tradesman an ideal? He need not want to be called an artist. Has the artist an ideal? He need not mind if he is called a tradesman. The pity is that tradesmen are sometimes such mere tradesmen, that artists are such unmitigated artists.

R.I.B.A.

MR. ASTON WEBB'S PRESIDENTIAL ADDRESS.

THE opening meeting of the session of the Royal Institute of British Architects was held on Monday evening last at 9, Conduit Street, W., the chair being occupied by the new president, Mr. Aston Webb, A.R.A., F.S.A.

At the commencement of his inaugural address, he referred to the dangerous illness and marvellous recovery of our Sovereign the King. Then, after congratulating Sir William Emerson on his knighthood — an honour never before conferred on a president of the Institute — and drawing attention to the prosperous condition of the Institute (the Fellows now numbering 1,700), and the proposal for alliance from the Edinburgh Architectural Association (which was approved by the meeting), Mr. Aston Webb continued :—

The president of the Architectural Association of Ireland (Mr. F. G. Hicks), in his opening address the other day, said, speaking of his Institute, "It isn't a bit up to date, and there seems very little cohesion among the members, for they seldom have an opportunity of meeting." Well, I have heard something of the same sort applied to this Institute, that there is a lack of opportunity for members to meet and know each other, and I propose, with the permission of the Council, to give one or two informal "at homes" here during the session at which possibly smoking may be permitted (to bring us "a bit up to date") and where members may meet in a friendly way and get to know each other better; and I cannot help thinking that, if you will support me by your presence, some good may be done in this direction.

The admission of Fellows to this Institute can hardly yet be said to have arrived at a final and satisfactory settlement, and in my opinion this will not be done until Fellows are elected solely from the ranks of the Associates, except in very exceptional instances. But there is at present a large number of practising architects we wish to see Fellows whom we cannot expect to submit to our examinations. This is a matter which will have to be once more considered by your Council, more especially as the provision for the direct election of Fellows lapses in May next.

The financial position of the Institute is, I am glad to say, satisfactory. Ten years ago we had a capital of £5,800; now we have a capital of £11,500. Then our revenue hardly balance our expenditure; now it exceeds it by something over £1,000 per annum.

It is obvious that this increased prosperity lays upon us the obligation of increased activity, for we are not a society to accumulate funds, but rather to make proper use of those our increased prosperity supplies us with.

The Institute and Education.

A cause which I think this Institute should as far as possible assist is that of architectural education. The Institute, as an examining body, has deliberately left the education of architects to other architectural societies: and in this, I think, they have acted wisely, for the undue multiplication of educational centres is obviously undesirable. The Royal Academy has an excellent architectural school, visited and instructed by architects, but does not undertake very elementary work, and deals with design only. The Architectural Association has recently started a day school dealing with elementary work and worthy of every encouragement; it is a scheme which, I venture to think, this Institute would do well to foster by every means in its power, both financially and otherwise, while individual architects could also do much to assist it by advising parents to send their sons for one or two years to the school previous to their being articled to them.

These two schools at the Academy and the Association do to some extent overlap, and if a certain course at the Association schools could be recognized as giving entrance to the Lower Architectural School of the Royal Academy, much in the same way as certain work at the public schools will admit a man to the University of Oxford, subject, of course, to any conditions that might be thought desirable, a great impetus would be given to both schools, and architects might at last feel that the education of the next generation was in a fair way to being placed on a satisfactory footing that would be capable of great development. There is, I think, no worthier or more unselfish object for this Institute to promote, or one that is more likely to influence architecture for good, than the careful and systematic education of our young men by a system which will not supplant the present system of apprenticeship, but will rather supplement it by supplying that which cannot be learned in an architect's office, or at least can be better taught systematically in a school.

Our examinations are, I believe, proving of real use to the younger men, and, judging by the increasing number that enter for them, they are fully appreciated. Ten years ago 305 went up for these examinations, while last year there were no fewer than 674. The real benefit of these examinations is the work required in the preparation for them. We do not claim that they necessarily turn out artists (these are born, not made), but we do claim that, with the knowledge thus obtained, it enables those who are gifted with the artistic instinct the better, and with the more certainty, to realise their imaginations and aims.

The Question of Competitions

is another of those questions that are always with us, and as long as architects see fit to enter it is plainly the duty of this Institute to do what it can to secure—first, the drawing-up of such conditions as shall be fair to both parties, and at the same time not entail more labour on the competitors than is necessary to enable a competent assessor to arrive at a just decision; and secondly, to secure the adoption and execution of the best design.

With this end in view a series of suggestions for architectural competitions was drawn up by this Institute in 1881, and reconsidered and revised by the Council during the last session. These have recently been sent to all public bodies likely to organise competitions; in addition to which a copy is always sent to the promoters of a contemplated competition as soon as it is heard of by the officials of this Institute. But when all this is done there still remains the question of the appointment of the assessor, a matter of supreme importance both to the promoters and the competitors. Ever since 1881-82 architects have insisted that a professional adviser should be appointed in all open competitions, and in many cases the president for the time being of this Institute is asked to nominate the assessor, and after some enquiry into the matter I can find but little objection taken to the selections made or to the decisions given, bearing in mind, as I well know by experience, that the decision can seldom be thoroughly satisfactory to more than one of the competitors. It has been, however, urged by some that the selection of the assessor should be made by a small committee rather than by the president, and that two or more assessors should be appointed in all competitions of any size. Personally I do not share this opinion, believing that the sense of individual responsibility is likely to give better results in both cases.

How far the system of selecting an architect by competition for the erection of any building is a desirable one will, I suppose, always be in dispute; but that it gives an equality of opportunity to all architects, great or small, known or unknown, is, I think, indisputable; and it has always seemed to me one of the strongest points in its favour, for we all could name men, now doing excellent work, whose first opportunity came by competition, and we know in this crowded world of ours how difficult it is for new men to obtain a hearing.

[The president here referred to the Architects' Benevolent Society, stating that out of 617 Fellows of the Institute only 191 subscribed, and out of 1,066 Associates only 70. He ventured to think that this ought not so to be.]

The Campanile: St. Paul's.

The fall of the Campanile at Venice forcibly reminds us of the necessity for continual watchfulness as to the structural stability of ancient buildings, and the engineer's report on the foundations of our own St. Paul's still further emphasizes the fact; and while these instances by no means justify undue interference or rebuilding of these structures, they show the danger of endeavouring to hand them down to posterity in exactly the same condition as we have received them. Most of the members of this Institute will, I think, sympathise with the desire of the Italians to re-erect their fallen tower, and be pleased that the Royal Academy has taken the lead in showing the practical sympathy of art-loving England with Italy in her loss. But how much better, by careful maintenance and judicious repair, to avoid such catastrophes!

In the case of St. Paul's a note of warning has been sounded apparently none too soon, and we look to the guardians of that great pile to take every precaution, on the best possible advice, to ensure its safety, appealing to the Government for funds should that be necessary.

But there is another and even greater danger threatening the buildings and antiquities of the kingdom which would rob us of much that gives this old country its charm; it is, I am afraid, a more subtle danger and therefore more difficult to deal with. I mean the wholesale depredations of

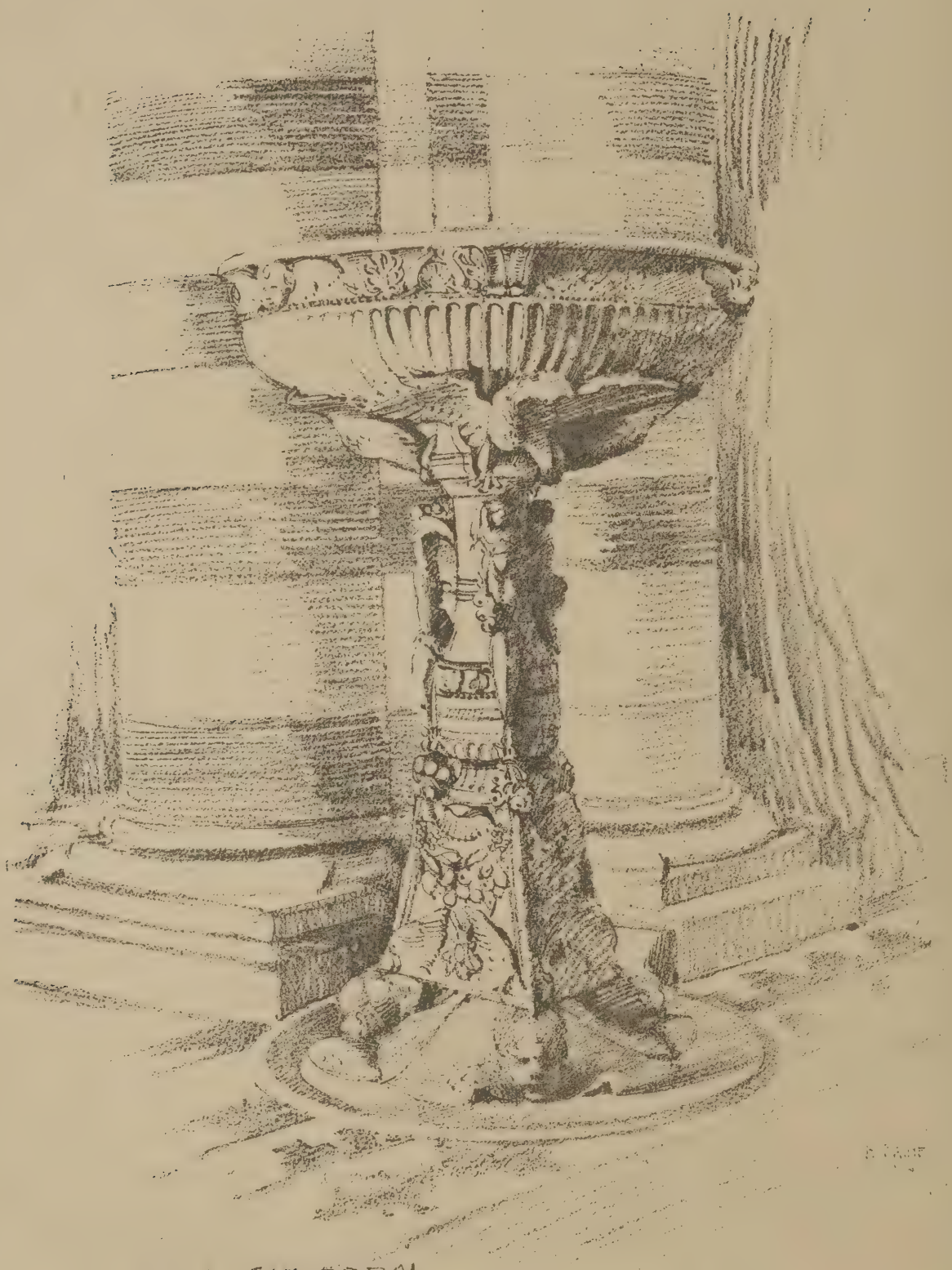
The "Art" Dealer.

I am informed on reliable authority that certain districts in this country are systematically mapped out by these gentlemen, and anything of interest, such as a panelled room, a moulded ceiling, a bit of ironwork even, a chest, or a clock, are all carefully scheduled, the position and means of the owner ascertained, and, as opportunity offers, the property is purchased, the cottage or house often pulled down, the contents sold, generally abroad, and then the land, stripped of its little treasures, is resold. It is difficult to use temperate language about such proceedings; but surely it behoves us, before it is too late, in conjunction with other societies, to see if it is not possible to take some united action to get these buildings and fittings registered as national belongings, so that, at any rate, they cannot be removed from this country, a course which, I understand, has already been adopted to some extent in France and Italy. This is work in which other societies are also interested, and we are always ready to act with them as occasion arises.

How often we see a really noble and

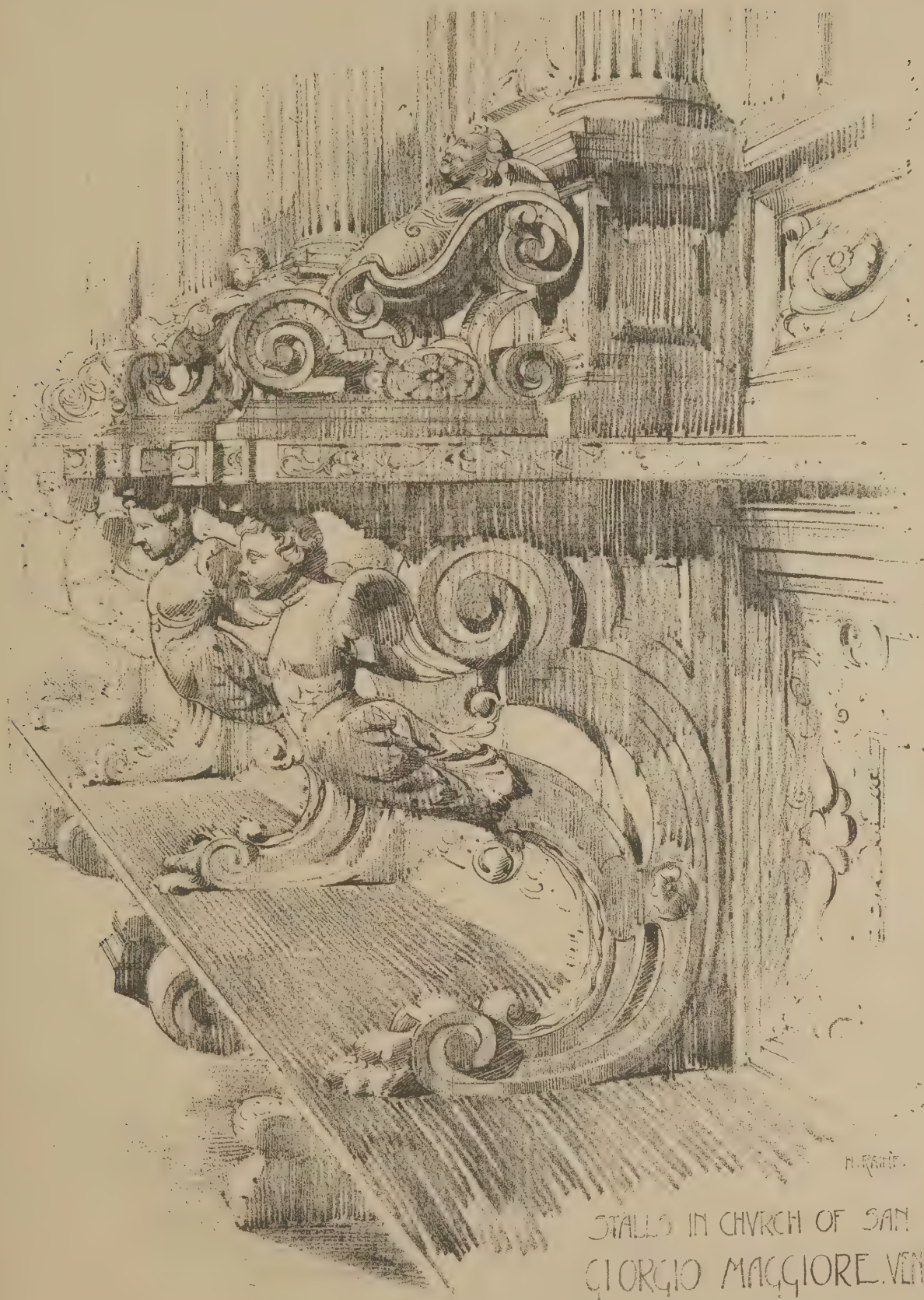
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SIENA CATHEDRAL
Sketch by A. Parr.

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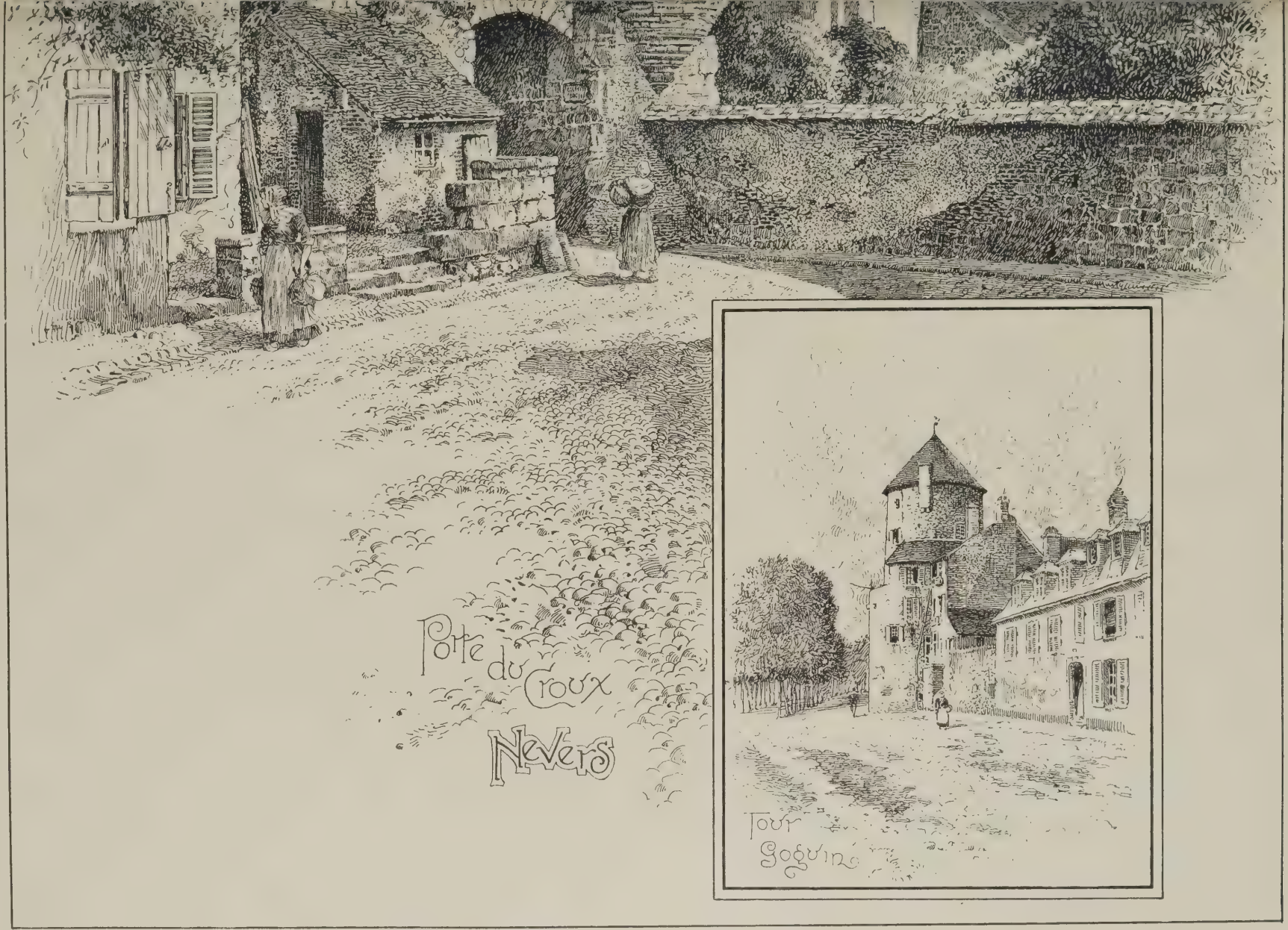
STALLS IN CHVRCH OF SAN GIORGIO MAGGIORE. VENICE.

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DRAWN BY PERCY WADHAM.

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ostly building hidden away in some inconenient and cramped site, without any approaches worthy of the name, simply because he land was easily obtainable or happened o be vacant at the time, or could be obained cheaply, or to improve the value of djoining property; reasons we have heard ut forward repeatedly, but nearly always sulting in the loss of a great opportunity f ennobling and beautifying the town; hile, instead of money being saved, as is olishly supposed, money is really wasted nd thrown away.

Why is the National Gallery site so freuently pointed to as an ideal one? Surely ecause it has, as so few buildings have in ondon, a slightly elevated site, with a large pen space in front of it, and is approached y a main thoroughfare leading directly to s façade. The Royal Exchange has a fine te, for a similar reason. Wren carefully lanned the most splendid approaches to St. aul's, which would have made the city one f the finest in the world; but the greed and isputes of the citizens unfortunately prented his scheme being carried out. The natter is of still more importance now that ne picturesque manner of the Houses of arliament and the Law Courts is giving lace to a more palatial and formal style. I ould venture to assert, though it should rely not be necessary, that every public uilding should be entirely detached, and ould stand on a site of an area at least half s large again as the area which the buildings ctually cover, and that they should, wherever ossible, have a fine road leading up to them. he Americans are fully alive to this point, nd are laying-out other cities with great onumental dignity.

Another matter which I notice in London nd other places with regret is the disappearnce in the new quarters of the old-fashioned square," which adds so much to the appearnce of the older quarters. The new-fashioned gardens" apparently have taken their place, ne difference being that while a "square" as bounded by a public road, and had the onts of the houses facing it, the "gardens" ave no surrounding road and the backs of ne houses abut immediately upon it. The sult, of course, is that while the "square" dds greatly to the variety and beauty of our reets, the "gardens" are entirely hidden way, and might be non-existent as far as ne public thoroughfares are concerned. The dvantage claimed is the increased privacy btained for the "gardens," counterbalanced rely by the improved outlook given by the square" to the front of the houses, while ne somewhat sordid surroundings of the garden," with its rows of back windows nd its stagnant air, hardly make for beauty r restfulness.

The design and details of buildings are a natter for the individual artist, and not one, n my opinion, in which this Institnte can ften, if ever, usefully interfere; but when reat improvements are in contemplation the pinion of such a body as ours, composed of ocieties all over the country, may, I think, e of great use to the public authorities.

Borough Surveyors and Architecture.

At present, as we all know, we architects re unable to erect any building in any of ur towns without first submitting very comlete plans, and in many cases elevations nd specifications to the borough surveyor, ho exercises under the local by-laws a strict upervision with regard to height and size of ooms, windows, thickness of walls, the inutest details of drainage and other natters; but when it comes to laying-out uburban districts, street improvements, and uch like, which call for the highest qualities f the architect, the plans are usually drawn y the borough surveyor and subjected appantly to practically no expert criticism whatever.

Now, might it not be required that when such schemes have to be prepared they should be submitted for criticism and advice to some expert architectural authority, such as, say, the local Architectural Society, who might also be asked to nominate an architect to consult with the surveyor in preparing the scheme; and, in the event of the Corporation or Council and the Architectural Society not agreeing on any point, might not the question be referred, say, for example, to the Council of the Institute? It surely could not be argued that this would be derogatory to the borough surveyor, for, as we architects cheerfully submit our proposals to the surveyors, there would seem to be no impropriety, but quite the reverse, in the surveyors laying their architectural schemes before the architects and, in important architectural schemes, working with them.

Another matter to which the attention of this Institute has been called is the local building by-laws in many rural or practically rural districts. These by-laws are often drawn up on the lines of the building laws of large towns; they impose most unnecessary and burdensome conditions on those building in the country, and though the attention of the Local Government Board has been directed to the matter, and a deputation has been received, but little more has been done.

The Holborn-Strand Scheme.

The London County Council have schemes on hand of the greatest magnitude, and they have, as is well known, consulted this Institute with reference to the great new thoroughfare from Holborn to the Strand. Unfortunately they were not able to adopt our suggestions in their entirety; but their committee, with the best intentions (which they appear not to have been strong enough to carry through), obtained designs in a limited competition, and a report upon them by an assessor whose decision everyone would have been willing to abide by. This report, however, was not made public for two years, and appears to have remained a dead letter since; and now, I believe, this Institute and the public are absolutely in the dark as to whether there is to be any general scheme or control over the buildings to be erected, and, if so, by whom this control is to be exercised, whether each plot is to be let to the highest bidder, without any reference to a general scheme, and, finally, what has become of the design placed first in the assessor's award; and yet it is hardly too much to say that in almost any other capital in Europe it would be looked upon as a matter of public and national importance, and surely it is one on which all are entitled to be informed.

The encouragement of local schools of art by their municipalities is another matter that should interest this Institute. It will be remembered that when London was being decorated for the recent Coronation the decoration of Westminster Bridge was entrusted to the Royal College of Art; and, mainly through the instrumentality, I believe, of Sir William Richmond, funds were provided by the London County Conncil for the purpose, the students giving their services. I think the Council and all concerned are to be congratulated on this experiment, which might be usefully followed throughout the country, for there are many buildings required for temporary purposes which require erection and decoration, and present precisely the opportunity required for students to try their hands upon. The employment of students in such work is better than their employment on more permanent work, where their inexperience tells against them, and may only end in discouragement.

While considering the responsibilities of municipalities towards the encouragement of the arts and crafts, we may remind ourselves of the responsibilities that lie also with us. We rightly have a voice in the selection of the artists and craftsmen who work on our buildings. Depend upon it, great discouragement is caused to earnest workers, and much harm done, if just to save ourselves time and trouble we take the first article of commerce that comes to hand. Think what a school of craftsmen the enthusiasm of Pugin raised, producing work which is really little short of marvellous when we remember the sort of work that was being done at that time. We still feel its beneficial effects. Gilbert Scott, William Burges, J. F. Bentley, and many others, both dead and living, have done the same; it is certainly one of the directions in which we can do incalculable good or ill to our art, and it is a responsibility of which we cannot and must not divest ourselves.

A Tribute to Bentley.

I cannot conclude without reference to one building recently erected, the Cathedral Church at Westminster, and its gifted architect, the late John Francis Bentley, one of the most inspired church architects of the day.

At Westminster the problem was different from that required by the traditional Gothic plan of a cruciform church, with deep choir and transepts; and this difference naturally and properly affected the whole design, and while an enormous uninterrupted area has been provided for the assembling of large masses of worshippers, the mystery so necessary for the interior of a religious building has been admirably preserved by the careful lighting, the simple intricacy of its arches, its piers, its ambulatories and its chapels. It is a step forward in church building, nobly planned, and one for which we may be all unreservedly grateful. I would only venture to hope that some day the entrance front may be better seen from Victoria Street by the removal of one or two houses, and that the interior of the building may in due course be worthily completed.

Liverpool Cathedral.

Liverpool Cathedral is still one of the possibilities of the future; let us hope that it may prove, when erected, yet another step forward. I have already expressed my opinion that the author of the design named as the best in the first competition should have been given an opportunity of showing what he could do on the new site; it has, however, been decided otherwise. The request in the first conditions for the second competition that the building should be designed in a certain style was a curious instance of the inability of the public to trust architects to design for them what is most suitable, for though this condition has been since withdrawn it is, I believe, generally understood that the promoters remain of the same opinion still. We can only hope that the best man may finally be entrusted with this great monumental work, and that, when it is completed, he may be rewarded by the unstinted admiration of his brother architects, the highest reward any of us can hope to gain.

Modern Work.

We all of us lavish endless praise on old work, but are, perhaps, too chary of bestowing it upon that of our own time. If we are always contrasting the greatness of old work with the inferiority of the new, can we wonder if the public take the same view, and ask us to reproduce for them what we all so greatly admire? It is true we cannot reproduce old work; but the public do not understand that, for we do not teach them so. Great painters are not asked to paint in the style of Giotto, Fra Angelica or Titian, and would not do so if they were. Excellent copies of these great masters are made, and in a few years are sometimes mistaken for the originals; but they are not made by our great painters, and are esteemed of little worth. Sculptors

no longer masquerade our living statesmen in Roman togas, or attempt to reproduce a Jubilee procession in imitation of the Parthenaic frieze. Why, then, should we still be asked to design in the thirteenth century or any other bygone styles? Because, we are told, we have no style of our own. But we are quite sure that a tradition once broken can never be picked up again? And are we quite certain that the Renaissance tradition has ever been entirely lost in England? I do not think so. Are we going on for ever telling our young men they must not only study but copy old work, for they can never hope to produce anything equal to it? Is that likely to give them inspiration? Are we to tell them that while painting and sculpture are alive, the last word has already been said on architecture? There cannot be an architect who holds this opinion, though, I am afraid, under present circumstances we cannot wonder if the public do so. I am not thinking of that will-o'-the wisp, a new style —that may or may not come, I do not know; but rather suggesting that by a generous appreciation of modern work, and by boldly and generously showing our belief in it, good contemporary work may be encouraged, and abound among us, so that the public may come to believe and be interested in it also.

There is one quality we all desire in our buildings, whether we attain it or not, *Repose* – a quality we find alike in buildings so dissimilar as the exterior of St. Paul's and the interior of Westminster Abbey, in St. George's Hall, and even in that ornate river-front of the Houses of Parliament. It is the result of good proportion, arrived at by matured knowledge, and guided by a true artistic sense: it is entirely independent of styles, it combines simplicity without baldness and richness under control. It is a quality that can be felt, and, as Wren says, "aims at Eternity."

A vote of thanks to the president was proposed by Sir Lawrence Alma-Tadema, and seconded by Mr. J. Macvicar Anderson.

Mr. Alexander Graham announced with regret the deaths of William Salway (Melbourne), George Truefitt, Charles France (Bradford), Emerich Steindl (hon. corresponding member, and architect of the Parliament House, Budapest) and Eugène Müntz, the eminent architect and archæologist of Paris.

The secretary announced that Messrs. W. G. Perkins and A. H. Verstage had passed the October examination qualifying them to act as district surveyors in London.

The following gentlemen have been nominated by the Council for election at the business meeting to be held on December 1st (of London, except where otherwise stated):—

As Fellows: W. Black (Cape Town), W. J. Hardcastle, L. V. Hunt, L. Martin, J. Ransome and S. B. Russell.

As Associates: G. W. Allsop (New Zealand), C. W. Beaumont, J. H. Belfrage, R. Berrill, W. Bevan, H. C. Bishop, E. D. Brown, R. P. Chamberlain (Leicester), H. Chapman, A. R. Conder, E. F. M. Elmes, R. F. Farrar, J. H. Gibbons (Manchester), T. H. Gibbs, T. S. Gregson, B. Greig, P. J. Groom, P. J. Haywood, W. H. Hobeday, O. Holden (Kettering), H. S. Jardine, I. C. Kent (Hailsham), R. G. Kirkby (Sunderland), H.L.E.M. de Colleville (Brighton), W. J. Nash (Bournemouth), C. F. Newcombe (Newcastle), P. C. Newman, W. C. Oman (Johannesburg), E. O. Payne, W. S. Payne, M. McM. Roberts, H. R. Robertson, E. Sim (Blackburn), S. Smith (Deal), J. Swarbrick (Manchester), C. F. Ward, L. F. Ward, C. W. F. Wheeler, T. W. Whipp (Scarborough), H. A. Wilson (Newcastle-on-Tyne), R. G. Wilson, junr. (Aberdeen), D. Wood (Newark), W. Wrigley (Wakefield).

As Hon. Associate: G. M. Freeman, K.C., J.P.

Enquiries Answered.

The services of a large staff of experts are at the disposal of readers who require information on architectural, constructional or legal matters. Questions should in all cases be addressed to the Editor. The querist's name and address must always be given, not necessarily for publication.

Oak Turrets on Roofs.

BRADFORD.—J. D. writes: "I am erecting an oak turret in the middle of a roof of red tiles. Could any solution be applied in order to keep it from disfiguring the tiles during wet weather?"

Varnish might be used, or if this is objected to the oak may be given a coat of boiled oil.

Architects' Assistants for South Africa.

P. M. E. (Edgbaston) writes: "Being desirous of going out to South Africa, and having read the article on the subject in the BUILDERS' JOURNAL for October 15th, I should be glad to know the best means of securing an appointment out there, and whether you could recommend an agency."

H. H. (Workington) writes: "How could I obtain the names and addresses of one or two architectural firms in South Africa (Johannesburg or Natal) to whom I might apply for a situation as assistant?"

ALEC (London) writes: "(1) What is the approved aspect for a South African bungalow? (2) What is the meaning of the term 'steel' as applied to ceilings or roofs by Colonials? (3) Are any of the building materials we are accustomed to deal with prohibitive in South Africa?"

BUNGALOW (Greenock) writes: "Kindly name a book dealing with domestic architecture in South Africa."

Readers must not expect too much from us. We have published a good deal of information about architecture and architects in South Africa, and in our issue for October 22nd we were able to state the salaries paid to architects' assistants and the costs of living in the Transvaal and Natal. We have communicated with Mr. Chamberlain on the subject and published his reply. But still we are asked for more: in fact, some readers seem to think we are a kind of office for architectural emigrants. So that just now we can say nothing in answer to the above queries about obtaining appointments in South Africa. We may note, however, that the Transvaal Association of Architects has been formed at Johannesburg, with Lord Milner as honorary president. This association seems to consist chiefly of the architects who belonged to the South African Association of Engineers and Architects founded in 1891, but who resented the elimination of the word "architects" from the title. Its objects are stated to be primarily to form an influential representative body on the lines of the Royal Institute of British Architects, to whom the Government, the town council, and other public institutions may refer matters on which they desire the views of the profession. We have addressed a letter to this Association on the subject of architecture in their country, and in due course hope to publish their reply. Meanwhile we must ask readers not to send us any more enquiries on the subject, as we have nothing fresh to tell them. As to the London querist who wants to know what is the approved aspect for a South African bungalow, we would ask him to look at the map and note where the sun rises, and we would also suggest that if he thinks of practising architecture in South Africa it will be time enough to find out the proper aspects when he gets there. The term "steel," we presume, means stamped metal sheets if applied to ceilings and corrugated or sheet iron if applied to roofs. In regard to building materials, it would occupy too much space to answer that query, and we would refer our correspondent to Mr. John Begg's article on "Johannesburg: Before and After the War," published in the BUILDERS' JOURNAL for March 7th, 1900. There was also an article by Mr. Begg on "Architecture in the Transvaal," published in the R.I.B.A. Journal for January 13th, 1900. Lastly, as to a book on South African domestic architecture, there is "Old Colonial Houses of the Cape of Good Hope" (published by Mr. B. T. Batsford, 94, High Holborn, W.C., price 10s. 6d. nett—an illustrated review of it appeared in the BUILDERS' JOURNAL for March 21st, 1900); and doubtless the two articles on "Architecture of the Past in South Africa" in the ARCHITECTURAL REVIEW for October and November, 1900, will also be of interest to our correspondent.

Fences and Boundary Lines.

LONDON, E.C.—X. Y. Z. writes: "What is the usual mode of determining the ownerships of, say, an oak cleft fence in the absence of evidence on the point? Is the framing or the face of the pales generally placed towards the owner's property?"

The face of the pales forms the line of boundary, the theory being that an owner erects the framework of the fence upon his own property and then fixes the pales by nails driven homewards, in exactly the same way as one would do did the fence face a street or roadway. Of course it is possible that in very exceptional circumstances (*e.g.*, by a sale of part of a property which expressly reserves a certain fence) the fence may belong to the other side, but it is very unlikely to occur, and in such a case direct evidence rebutting the legal assumption mentioned above must be forthcoming. The question as to which owner had repaired the fence would then be of material value.

G. S. M.

Strength of Brickwork in Piers and Walls.

LONDON, S.W.—E. E. B. writes: "What is the safe load on brickwork by Gordon's formula (1) for piers, (2) for long walls with a concentrated load at a given point, taking into full consideration the longitudinal strength of the wall? The brickwork tests arranged by the R.I.B.A. apparently show that walls 2ft. 3in. by 1ft. 6in. have double the strength of piers 1ft. 6in. square. By continuing a line down on either side of a load concentrated on a long wall to an angle representing the bonding of the brickwork, surely our wall will be stronger still: but how much? Should the bearing area be taken halfway down the wall and Gordon's formula applied?"

Brick piers are as a rule of large width compared with the height, and it is not usual to apply Gordon's formula to them. If a brick pier 2ft. 3in. by 1ft. 6in. showed double the strength of a pier of similar construction and height 1ft. 6in. sq., it was possibly due in some way to the influence of the bonding, as there is nothing in the mere dimensions to account for it. When a wall is loaded at concentrated points the pressure is assumed to spread outwards in the lower courses at an angle of 30 degs. from the vertical on each side of the load. It does not strictly follow the bonding of the brickwork, as a brick may happen to be broken across the middle which in no way stops the bricklayer from laying it as a whole one. If Gordon's formula be used for brick piers the coefficient would be $\frac{1}{600}$. It will not apply to brick walls unless they are loaded throughout, and then a unit length would be taken and treated as a pier.

HENRY ADAMS.

Bricks and Mortar.

phorism for the Week.

'iew not this spire by measure giv'n
To buildings rais'd by common hands;
That fabrick rises high as heav'n
Whose basis on devotion stands.—PRIOR.

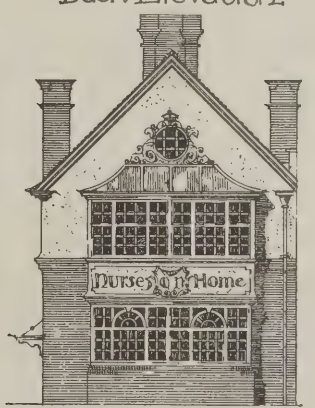
ur Plates. THE sketch of the font in Siena Cathedral, by Mr. Herrt Raine, shows one of the two noted ly-water basins at the west end of the ve. Both are similar in shape, their plan ing roughly triangular, with circular basins d bases. They are of Siena marble carved ry delicately and beautifully.—The church San Giorgio Maggiore at Venice can last of possessing what are undoubtedly nong the richest and most beautiful Renaisnce stalls in the world. There are two rs of them (a part of the upper tier is own in Mr. Raine's sketch), and every stall each tier is different. But a sketch of so nall a portion can only give a small idea the whole effect, which is truly marllous.—Nevers is built on a hill above the oire right in the middle of France. It has fine cathedral (shown in the general view om the Pont de Loire) chiefly notable for aving an apse above the crypt and another the opposite end of the building. The thedral is now being restored. The Porte Croux, which forms the main part of r. Wadham's masterly sketch, is the most teresting relic of the ramparts which once circled the town. It was built between 93 and 1398, and now contains a collection sculptured stones. The Tour Goguin ces the river to the west of the bridge. It as been aptly called a large dovecot, but rmerly it was a point of defence on the alls.

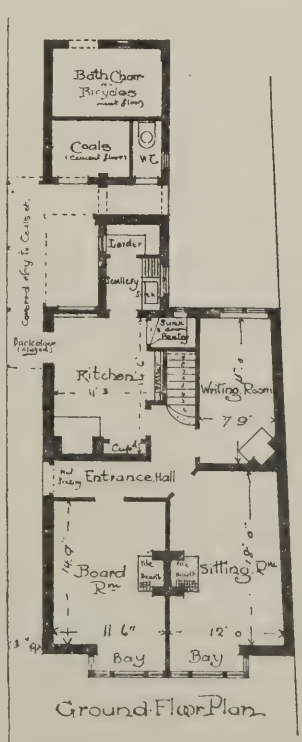
irmingham rchitectural ssociation. THE report for the past session—the twenty-eighth—states that there has been substantial increase in the membership, and at the work has been very satisfactory. he Council found it necessary again to rward a protest to the new Housing Comittee of the Birmingham Corporation, urging at municipal architectural work should e competed for in open competitions; and ey received in reply a letter from the chairan promising consideration for the views the Association when any new building chemes were promoted. The question of the roposed appointment of an architect to the irmingham School Board was also disssed, and it was decided to send a deputaon composed of members of the Council nd other architects to lay before the Committee the proposals dealt with at the revious meeting. The deputation waited pon the Committee and set forth its views. During the session the classes in design and onstruction were well attended, and the ork of the sketching class was fairly satisactory. Three visits were paid to works in rogress, the first to the new Board schools t Handsworth (Messrs. Buckland & Farmer, rchitects); the second to the new Free ibrary at Wolverhampton (Mr. Henry T. Iare, F.R.I.B.A., architect); and the third o the Wolverhampton Exhibition buildings, ien in course of erection (this visit was rranged as a sequel to a paper read by Mr. indsay Jones, who conducted the party over ie site). The statement of accounts shows a alance of £26 on the right side. Mr. Arthur Iarrison, F.R.I.B.A., is the president of ie Association for the current session, and Ir. T. Cooper, A.R.I.B.A., the vice-president. mong the papers to be read before the ssociation are the following:—November th, Mr. Andrew Johnson, M.I.C.E., M.I.M.E., n "Armoured Concrete"; November 21st, Ir. W. Henman, F.R.I.B.A., on "The Delopment of Hospital Design, illustrated by the Royal Victoria Hospital, Belfast"; December 5th, Miss E. Charles, A.R.I.B.A., on "Furniture"; January 9th, Mr. Bedford Lemere on "Architectural Photography"; January 23rd, Mr. A. T. Cooper, A.M.I.C.E., F.R.A.S., on "The Application of Electric Light to Buildings"; February 6th, Mr. James S. Gibson, A.R.I.B.A. (subject to be announced); February 20th, Mr. Edgar Wood on "Experiences"; March 6th, Mr. E. Guy Dawber on "The Evolution of Chairs"; March 20th, Mr. Harold Baker on "A Sketch of the History of English Architecture"; and March 27th, Mr. C. Silk on "The B.A.A. Excursion to Banbury," illustrated by Mr. Thomas Cooper, A.R.I.B.A., and Mr. John Ward."

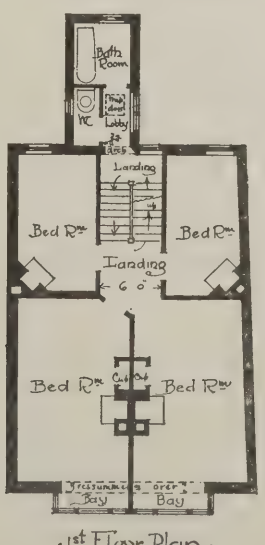
Preserving Stonework. IN his concluding address at the Royal Academy Professor Church suggested that paintings in fresco would withstand the London atmosphere, even in the open-air, if they were executed with baryta water instead of the customary lime water. Baryta water can be used with safety when twenty times stronger than lime water, and the sulphuric acid in London's atmosphere, though it destroys the lime in a fresco, forms in combination with baryta an insoluble and practically indestructible substance which preserves from harm the colours of the painting. Professor Church said that he had been using baryta with success in the Chapter House at Westminster, where the thirteenth-century stone-carving has practically been converted into gypsum by the action of the atmosphere. So bad was the state of this carving when Professor Church commenced his treatment that when touched portions would adhere to the fingers, and it was liable to be damaged even by the slightest touch with a feather-brush. He thought, however, that the application of the baryta water had preserved the carvings from further deterioration. The Professor described the changes that time and chemical action brought about in other mediums besides fresco, but in the case of oil, water-colour and tempora he could, of course, say little or nothing that was new.











GRANTHAM NURSES' HOME COMPETITION: SECOND-PREMIATED DESIGN.
H. C. FEDDEN, ARCHITECT. (See next page.)

TO ARCHITECTS AND THEIR ASSISTANTS.

IN the BUILDERS' JOURNAL for October 22nd full particulars were given of a new competition which we have started for the special benefit of architects' assistants.

No. 182, Fleet Street, London—an old stuccoed building of the last century—has been chosen as the subject of the competition, and the problem set is to re-design the front so that it complies with all modern requirements.

The conditions are to be accepted frankly and the front is to be a logical outcome of them. Designs are to be sent in between November 25th and December 1st next. Prizes of £5 5s., £3 3s. and £2 2s. are offered.

Special Note.

Several correspondents have written asking what is the height of the ground floor, and they seem to be worrying themselves about getting the *exact* dimensions. Now it was stated very clearly in the conditions that the existing dimensions of the building need not be absolutely adhered to, but that such reasonable variations might be made as necessity required. The floor lines were marked on the illustration published, and so far as the ground floor is concerned it is easy to determine its approximate height. The height from the pavement to the lead flat over the fascia-board above the shop is given as 12ft. 6in., and it is apparent that the ceiling must be about 1ft. 6in. below the flat; which gives the approximate height of the ground floor as 11ft.

Competitors should work out these things for themselves. The particulars were worded as clearly as possible, yet one correspondent writes to know whether competitors are to design the shop front as well! Of course they are to design the shop front. That is the most difficult part of all.

Another correspondent asks us to give him an idea of the London County Council's regulations about projections of cornices and butts: but we would observe that it is the competitors who are making the designs for this competition, not ourselves: and our correspondent had better refer to Laxton's, Lockwood's or one of the many other books which give the London Building Acts.

Another correspondent writes: "Can you supply the direction of the joists and approximate weight of floors to be carried by the front wall?"; another asks whether designs have to be on two separate sheets of Imperial size, though this is distinctly stated in the conditions; and other correspondents ask other questions equally irrelevant.

Competitors must think for themselves and not expect us to do it for them. Only by working out their own problems can they expect to become competent architects; and it is the special object of this competition to exercise that faculty.

Grantham Nurses' Home Competition.—The design by Mr. H. L. Fedden, of 11, Hart Street, Bloomsbury, W.C., illustrated on the preceding page, was placed second in the recent competition for a home for three nurses at Grantham, to be erected as a memorial of the late Queen Victoria. The cost was not to exceed £800.

Engineering Notes.

The Girls' School, Abergavenny, has recently been fitted with hot-water heating apparatus by Messrs. John King, Ltd., engineers, Liverpool, who have employed their latest improved "Rahnee" radiators and "Rex" radiator valves.

Electric Tramway Expansion in Lancashire.—The first completed length of the South Lancashire Electrical Tramways connecting Leigh with Bolton was opened for public use recently. The system when finished will include over one hundred miles of tramways, linking Manchester, Liverpool, Wigan, Accrington, Bolton, St. Helen's, Leigh, and other cities and towns. The Atherton, Tyldesley and Hindley routes are now completed, while the Liverpool and St. Helen's branch was opened a few weeks back.

London Bridge Widening.—The Institution of Junior Engineers, by permission of the Bridge House Estates Committee, recently paid a visit to the London Bridge Widening Works, and had the opportunity of witnessing the erection of the last girder of the temporary footbridge. The resident engineer, Mr. W. B. Cole, A.M.I.C.E., assisted by Mr Lynton and Mr. Hugh Cruttwell, showed the party over. For the convenience of foot-passengers temporary footbridges are under course of construction on both the east and west sides of London Bridge. Each footbridge consists of five spans of steelwork, one span 157ft. 7in., and four spans 146ft. 5in., which are supported from the piers by steelwork trestles and at the abutments by timber trestles built up from the stairs leading down to the river, the intervals between the ends of the steelwork and the footway levels at the ends of London Bridge being filled in by timberwork. The clear width of the temporary footbridges is about 11ft. 2in., and the length from end to end is about 1,006ft. On the top booms of the girders and on the top timbers of the timberwork a crane road is laid and two electric cranes are mounted on each footbridge. These cranes will be used for dismantling the existing parapet, &c., and setting new stones. The total weight of steelwork is about 750 tons, and the new granite will amount to about 50,000 ft. cub. The architect for the work is Mr. Andrew Murray, F.R.I.B.A., city surveyor; the engineer is Mr. E. Cruttwell, M.I.C.E.; and the contractors are Messrs. Pethick Brothers, of Plymouth, with the Patent Shaft and Axletree Co. as sub-contractors for the steelwork.

Vauxhall Bridge.—The time is approaching when it will be possible for the London County Council to let the contract for the construction of the superstructure of the new Vauxhall Bridge. About three years ago the Council, after long deliberation, decided that the new bridge should be of concrete faced with granite. After certain legal proceedings have been taken against the present contractor for the foundations and the piers in regard to the width of the waterways, and after the opinion of counsel has been taken on the matter, it has been found that the headways to the three openings on the accepted plan for a concrete and granite bridge do not comply with certain clauses of the Vauxhall Bridge Act, 1895. The engineer has reported that he cannot carry out the construction of a concrete bridge to leave the openings of 70ft. wide and give them a clear headway as required by the Act of 18ft. and 15ft. respectively throughout the whole width. The Bridges Committee of the Council, in view of these facts, have been considering what should be done, and have had designs prepared of the only type of bridge, namely, a steel one, which, under the circumstances, they say they could recommend the council to erect. They state in a report on the subject that the erection of a steel bridge faced with granite had received their careful attention, but had been abandoned for several reasons. The elevation which they consider shows the most satisfactory is that for a superstructure to be wholly constructed of steel, with elliptical arches and ornamental facings. The cost for engineering works for such a structure, including the approaches, is estimated at £170,000, and the committee asks the Council to sanction expenditure up to that amount.

Builders' Notes.

Mr. W. Seaton, builder and contractor, of Pontypridd, died last week.

Mr. F. M. Vick, sen., a well-known builder and contractor, of Chichester, died last week at the age of sixty-seven years.

The Northampton Master Builders' Association held its annual dinner last week, Mr. John Bird presiding.

While excavating a Sewer in Brightside Village, Sheffield, last Friday a fall of earth occurred in a trench about 6ft. in depth, and the three men working therein were killed.

Fireproof Floors.—The tender of the Columbian Fireproofing Co., 37, King William Street, E.C., has been accepted by the City of Sheffield Corporation for concrete fireproof floors, roofs, &c., in their new premises, Angel Street, Sheffield, and the work is now in hand. Their tenders have also been accepted for the branch banks at Fleetwood, Lancashire, and Sixways, Birmingham, for the London City and Midland Bank, Threadneedle Street, E.C.

Police as Painters.—The Watch Committee of the Manchester City Council have passed the following resolution:—"That the Committee having further considered the question of painters' work being done by policemen and firemen, which is referred to in the resolution of the Council of October 1st, are of opinion that the important work of painting the police- and fire-stations be given out to contractors, in conformance with the usual practice of the Committee."

London County Council.—At last week's meeting of the Council the Parliamentary Committee recommended "that it be referred to the Parliamentary, Highways, Finance and Housing Committees to at once consider the advisability of the Council promoting in the next session of Parliament a Bill on the subject of underground railways in London." This was carried.—The Highways Committee brought up its report with reference to the proposed tramway over Westminster Bridge and along the Victoria Embankment to the Strand, and the Council resolved "that application be made in the next session of Parliament for powers for the construction by the Council of a double line of tramways from the present tramway terminus in Westminster Bridge Road, *via* Westminster Bridge, Victoria Embankment, and that portion of the subway authorised by the London County Council (Subways and Tramways) Act, 1902, between the Strand and the Embankment, to join, at a point near the Strand, the underground tramway authorised by that Act."—On the report of the Theatres Committee, Sir A. West, the chairman, said the Council was responsible for public safety in 350 houses capable of accommodating 400,000. On the one side they were attacked as being too rigorous in their exactions, and on the other side they were asked to be stricter. The Council had received the *damnosa hereditas* of theatres, wedged and jambed between ordinary dwelling-houses, which were quite unfitted for the purposes for which they were built.

de denied that their requirements were excessive or exacting. In this matter it was impossible to get finality, but this he could say—that in no theatre constructed under the Council's conditions had the managers been called upon to deal with any requirements which entailed any large expenditure. In the case of the safety of the people the Council could not swerve an inch to the right or left, and, that being secured, they would endeavour to the utmost to obtain the co-operation of the theatre managers.—On the recommendation of the Highways Committee, it was agreed to make application to Parliament for powers for the construction by the Council of new tramways from Battersea Park Road, *via* Battersea Bridge Road and Battersea Bridge, to a point in Beaufort Street, Chelsea, near King's Road. The estimated cost of the new line is £57,667.—The Council authorised the Improvements Committee to spend £30,600 in constructing vaults under the new street from Holborn to the Strand, and the portion of Southampton Row which was now being widened.

Views and Reviews.

A Book of Lettering.

A good many books of lettering have been compiled at one time and another, and there is nothing particularly praiseworthy in this collection. The author has thought it expedient to develop his lettering from ordinary writing, but, however good the actual practice may be, the results are not very pleasing; the writing forms merged into type are really no better than some of the job printer's stock-in-trade. Then follow the usual styles of lettering, Egyptian, Roman, Old English, Gothic and German, and towards the end of the work a series of alphabets done with pen and brush, alphabets based on Anglo-Saxon and later work, stencil and wire-work letters, monograms and type alphabets. We candidly think a lot of these are very ugly. Moreover, in the actual drawing of them there is a shakiness of line which is distressing, especially when it concerns wire-work, which is essentially smooth in outline. The book is an elementary one, and on that account cannot be recommended, for if one is wrong at the start, how can the finish be right?

"Lettering," designed and compiled by Frank Steeley. London: G. W. Bacon & Co., Ltd., 127, Strand, W.C. Price 2s. 6d.

Scientific Lightning Protection.

This excellent booklet on lightning conductors should be read by all architects and builders, for they will learn many new facts which modern science has established and will have a score of fallacies dispelled. Of late years considerable attention has been devoted to this subject, and the deliberations of the Lightning Rod Conference have shown the right method of setting to work. Lightning is so gigantic a force, so erratic in its path, and so swift, that the difficulties of studying it are enormous; but as the result of constant and scientific observation it is now possible to render a building practically lightning-proof. To do so, however, requires exact expert knowledge. There are many new things to be considered and many old ideas to be abandoned. Mr. Hands observes that a difference in height makes very little difference in risk, for houses on hills are not more often struck than those in valleys. Chimney shafts are undoubtedly liable to be struck, not simply because of their height, but for the reason that the heat they send up forms a path of comparatively low resistance to the lightning flash. Then, again, it is to be noted that flashes are not always vertical—side flashes are frequent—and it follows that in any particular case the part most liable to be struck is that nearest the storm-cloud, and the highest may not be the nearest. The popular beliefs about lightning conductors are mostly incorrect. A conductor does not attract lightning, so that if there is one at the end of a building and the flash occurs at the opposite end it is to be expected that the current will take the path of least resistance, that is, the shortest. Then, again, a church with four pinnacles is not protected because one has a conductor—they all want conductors: and the same thing applies to chimneys, for which the coronal band around the top, with spikes at intervals, is undoubtedly the best. As regards the points themselves, Mr. Hands says there is no necessity for them to be like needles, nor to be tipped with platinum. The size of the conductor (generally of copper tape here, though iron is used abroad) should not be less than $\frac{3}{4}$in. wide by $\frac{1}{8}$in. thick, but there is no necessity to make it larger than sufficient to prevent fusion. The tape should be fixed *close* to the building, because the latter is of much less conductivity, and it is consequently of no benefit to use brackets or other supports, which, morever, are handy for burglars. As to earth connections, Mr. Hands has many mistaken notions to expose. It is wrong to merely make the copper-plate in contact with some isolated patch of moisture or to put it in a brick-lined pit. The connection must be with the earth direct, and this may be made by attaching the end of the conductor to a gas or water main. Moist earth is a better conductor than dry earth, but thunderstorms are most prevalent during hot weather, and any provision for keeping the place moist by drippings from a down pipe is therefore untrustworthy; indeed, it is about as effective as the plan of a certain gentleman who always went out with a jug when thunderstorms approached and poured out his little stream of water! There are many other details to which space cannot be devoted here, but they are all dealt with in Mr. Hands's booklet, which, though in some sense a trade publication, contains much information of use to all concerned with the subject.

"Scientific Protection: A Guide to the Proper Application of Lightning Conductors," by Alfred Hands, F.R.M.S. J. W. Gray & Son, 115, Leadenhall Street, London, E.C.

Surveying & Sanitation.

Bridlington Corporation Scheme. — The Bridlington Town Council have decided to buy The Elms, the residence of the late Dr. Brett, for the sum of £3,250, and also four cottages to the south of that, with 7,163 sq. yds. of land behind for £1,500: the object being to widen St. John's Street, to use the back land to enlarge the council's depôt and cattle market, and to utilise the remainder as building land.

The Condition of Derbyshire Roads.—Mr. A. Haslewood, surgeon, of Buxton, recently wrote to the Local Government Board with reference to the condition of the Derbyshire roads stating that he had repeatedly taken the trouble to report upon the abominable condition of the roads, bridle-paths, gates and overhanging and obstructing trees in the jurisdiction of many of the parish and rural district councils in the neighbourhood, and so far without achieving any result further than promises of amendment, and he suggested that the defaulting councils must be under an absolute compulsion to put and maintain the roads, old as well as new, in good condition. He received a reply from the Assistant-Secretary of the Local Government Board stating that the Board could not usefully intervene in the matters to which he referred.

New Patents.

These patents are open to opposition until December 8th.

1901.—Sewage Filters.—17,581. J. Lowe, 22, Market Street, Droylsden, Manchester. A number of chambers are constructed under the filter bed, and a vacuum is created in them. By this means the sewage is drawn quickly through the filtering medium.

Fixing Grates in Showrooms.—22,288. P. Walsh, 33-35, Barronstrand Street, Waterford. A long rod is used, screwed at its upper end and having a hook at the bottom for passing under the grate. The upper end carries a cranked strip which holds the jamb and lintel in place. Two of these rods are needed, one at each side.

Slide Rules.—23,236. J. Perry, 34, Palace Gardens Terrace, London, W. This invention relates to slide calculating rules of the Gravet type. Ordinarily the rule has four scales, A, B, C, D; but in this device the D scale is replaced by a log log scale—that is, a scale graduated proportionally to the log logs of the numbers from 2·5 to 1,000 or more.

1902. — Painting Floors. — 18,775. A. Soborski, Kosten, Posen, Germany. The device consists of a paint container having two brush wheels arranged under it. These latter are fed with the paint above them and are notated through gearing as the apparatus is passed over the floor.

The following specifications were published on Thursday last, and are open to opposition until December 15th. A summary of the more important of them will be given next week.

1901.—13,736, Watson, furnaces for the destruction of town refuse. 19,612, Walker, sliding windows. 21,331, Pfister, cloisonné mosaics and windows. 21,443, Burton, roof glazing. 21,614, Porter, constructing roadways, pavements, floors, &c. 22,936, Birks, well-sinking apparatus. 24,023, Cousin, smoke-consuming furnaces. 24,247, Clifford, kilns. 24,275, Arnold, devices for dressing, turning and cutting stone. 24,580, Wilkinson, materials for pavements. 25,349, Shanks & Burnside, water-supply taps. 25,519, Faller, methods of consuming smoke. 25,652, Hattersley, cooking ranges. 25,841, Parker, machines for crushing and grinding.

1902.—4,957, Harrison & Bretherton, lock. 7,200, Couston & Porritt, jointing iron plates. 8,861, Smyth, glazing roofs. 10,556, Hind, Brassington, & Brassington, weather-board and draught-preventer. 11,455, Spencer & Proctor, brackets for securing mantel boards 12,635, Mountany & Farnsworth, means of distributing sewage. 14,685, Pfister, staining wood. 15,577, Uber, roller blinds or shutters. 16,483, Swann, fastenings and stops for window sashes. 17,060, Bennett, tiling.

TO CONTRIBUTORS.

The Editor will be pleased to consider any articles, illustrated or otherwise, dealing with old and new buildings, methods of construction, or other matter of an architectural character. He will also be glad to consider architectural photographs and sketches (the latter preferably in black and white) and measured drawings of work in this country or abroad. News items of interest to architects and builders will also be considered, provided the name and address of the sender is given; no notice will be taken of anonymous contributions. All communications should be addressed to the Editor of the Builders' Journal, Effingham House, Arundel Street, Strand, W.C.

Keystones.

A Carved Oak Reredos has just been erected at the east end of the Church of St. Michael, Hulme, Walfield, near Congleton, Cheshire.

The new Church of St. Bartholomew, Wycliffe Road, Lavender Hill, London, S.W., was consecrated recently. Mr. G. H. Fellowes Prynne, F.R.I.B.A., was the architect of the building. The cost was £8,500.

A Mission Room and Club at Sheffield is being erected in Forncett Street for All Saints' Parish, from plans by Mr. Joseph Norton, architect, of Norton Wodicate. Mr. George Carr is the contractor.

St. Ives Market-House.—It is proposed to demolish the old market-house at St. Ives to make room for a local government building. This building has a quaintness and picturesqueness of its own which should help to ensure its preservation.

Northallerton's Proposed County Hall.—A meeting of the North Riding County Council was held at Northallerton last week. Plans of the proposed new county buildings and a sketch of the front elevation of the same were submitted. The cost is estimated at £25,000. The plans were approved.

A Sanatorium for Pauper Consumptives is being built by the Bradford Board of Guardians on a site beneath Eastby Crag, three miles from Skipton. Provision is to be made for 42 patients, and the total cost is estimated at about £10,000. It is estimated that ultimately the price per bed will work out at £192. The patients' quarters will consist of two pavilions, each containing 4 single-bed rooms, 4 two-bed rooms, 1 four-bed room, 1 five-bed room and a dining-room, in front of which the usual verandah will be replaced by a glass-screened corridor going the entire length of the building. The architect is Mr. Fred Holland.

Charlotte Yonge Memorial.—M. Kempe has submitted to the executive committee for the Charlotte Yonge Memorial his drawings and estimates for the proposed rood screen and chancel entrance in Otterbourne Church, and the reredos in the Ladye Chapel of Winchester Cathedral, which are to be erected as a public memorial to Charlotte Yonge. The designs for the work at Otterbourne were approved, and steps were authorised to be taken for obtaining a faculty to carry them out, while the drawings for the reredos were adopted, subject to such modifications in detail as may be suggested hereafter. The work is to cost £500.

The Wyclif Church, Newcastle-on-Tyne, in Elswick Road, has been opened. The style is Perpendicular Gothic, freely treated. It accommodates 306 adults, or a mixed congregation of about 350. Provision is made for a future end gallery to seat 100 adults, or 120 in a mixed congregation. The choir is on the platform in front of the pulpit, and the baptistery is in the platform, covered when not in use. The organ is in an apse behind the pulpit. The building consists of a wide nave with hammer-beam open-timbered roof and plastered ceiling. There are double transepts on each side, with timber arches supported on iron columns. The ladies' vestry is behind the pulpit. The seating is arranged semi-circularly. The schoolroom is spacious, and there are also under the church a church parlour, a heating chamber, and lavatories, &c. The windows are glazed with lead lights, and the external walls are faced with red pressed facing bricks, and have tawny terra-cotta dressings and tracery, &c. The cost has been about £4,383, including boundary-walls, gates, railings, &c. The builder was Mr. A. Bruce, Newcastle, and the architects were Messrs. G. Baines, F.R.I.B.A., and R. Palmer Baines, 5, Clement's Inn, Strand, London, W.C.

A Town Hall at Cheltenham is being erected on the north-east side of the Winter Garden at a cost of £35,000. Messrs. Collins & Godfrey are the contractors, and Mr. F. W. Waller, F.R.I.B.A., is the architect.

The New Buildings at Abingdon School were opened last week. They comprise a chapel, gymnasium, art room, science lecture room, physical laboratory, chemical laboratory and store room, school office, dark room for photography, and three classrooms. Mr. West was the architect.

Redlynch Parish Church, dedicated to St. Mary the Virgin, was built in 1837. During the sixty-five years that have elapsed since then the building has naturally got considerably out of repair. It has now been renovated by Mr. M. Harding (diocesan surveyor), of the firm of Messrs. John Harding & Son, architects and surveyors, of Salisbury.

The North British Railway Hotel, Edinburgh, has been completed. It is situated at the east end of Princes Street, and has taken nearly seven years to erect and furnish. It was early in 1895 that the directors of the railway selected out of some half a dozen competitive plans for the hotel those of Mr. W. Hamilton Beattie, Edinburgh, who has not lived to see the completion of his work. The site is 180ft. by 190ft. It has cost about £380,000 exclusive of site and furnishings.

A Lunatic Asylum for Yorkshire has been erected at Scalebor Park, Burley-in-Wharfedale, by the West Riding County Council, for private patients, at a cost of £130,000. Accommodation is provided for over 200 inmates. The main buildings occupy about 6½ acres, and are constructed to form the letter "E," with two additional sections in the rear for acute cases, all the blocks being connected by glass corridors. There is a theatre and recreation-rooms. In style it is a free treatment of Tudor, and the rich stone from local quarries has been used.

A New Church at Cornholme has been erected. Mr. C. Hodgson Fowler, F.S.A., of Durham, was the architect. It is perpendicular in style, and consists of nave 72ft. by 24ft., north and south aisles each 72ft. by 11ft., chancel 37ft. by 21ft., with north chapel and organ chamber, sacristy and choir vestry on its south side, a western tower and spire, and north porch. The nave is five bays in length and the chancel three, and each has a clearstory of square headed windows. The contractors have been: Messrs. Bowman & Son, Stamford, mason's work, wood carving, and gas fitting; Messrs, Hanson, Burnley, woodwork; Mr. T. Blacka, Todmorden, plastering; Messrs. Wm. Foster & Sons, slating; Mr. J. Smith, plumbing; Messrs. Kayle & Co., Leeds, glazing; and Messrs. Gibbs & Co., Liverpool, heating.

The Glasgow Art Galleries in Kelvin Grove, Glasgow, which housed the fine art and the archæological and historical collection during the recent international exhibition, was dedicated to its permanent purpose as the home of the collections of fine art and of natural, scientific and industrial objects belonging to the Corporation recently. The building is the outcome of the Glasgow Exhibition of 1888, the £40,000 surplus derived from that undertaking serving as a nucleus for its erection. To this amount a considerable sum was added by public subscription, but there is still a large balance of the £170,000 which the building has cost to be provided. As the galleries have been finally arranged sculpture occupies the great central hall. The eastern pavilions on the ground floor are devoted to natural history, science, zoology and mineralogy, whilst industrial exhibits and historical memorials and remains are located in the western pavilions. The upper floor of the building is entirely devoted to pictures and objects of art, the latter being displayed in the balconies.

Mr. Joseph William Rowell, architect and land surveyor, senior partner of the firm of Messrs. J. M. Rowell & Son, of Newton Abbot, South Devon, died recently.

A New Club at Byker, to be known as the Byker and Heaton Union Club, Ltd., was opened last week. The work has been carried out by Mr. W. Thompson, contractor, Byker, from designs by Mr. T. T. Hill, architect, Heaton.

A New Cattle Mart at Frazerburgh has been erected in Albert Street. The galleries around the auction ring are capable of accommodating over 150 persons. Mr. W. S. F. Wilson, architect of Fraserburgh, had the designing of the building, while the contractors were:—Mason, Mr. George Corbet, New Pitsligo; joiner, James Shirran, Fraserburgh; slater, James Reid; plumber, Ferguson & Co.; and painter, James Stewart.

The R.I.B.A. Kalendar for 1902–3 has just been published. A new and useful feature is a list of district surveyors under the London Building Act, 1894, with their districts, office hours, &c.

The Architectural Association Conversazione was held on Friday evening at the galleries of the Royal Institute of Painters in Water-Colours. Mr. and Mrs. Henry T. Hare received the guests, who numbered more than 500. The walls of the galleries were covered with pictures (forming the autumn exhibition), and Pitman's Viennese orchestra played selections during the evening. In the smaller rooms the work done by students in the School of Design was exhibited, and photographs of this year's excursion to Banbury.

Truro Cathedral.—The Diocesan Cathedral Committee presented a report to the Conference held at Truro on Thursday last. Referring to the heating of the building, they stated that finally the plans of Messrs. Grundy had been accepted for a system of hot air with hot-water pipes in the nave and south aisle, and the readjustment of other existing arrangements. As to lighting, the sub-committee have recommended that, while immediate provision should be made for the employment of gas, care should be taken that nothing should be done to interfere with the future introduction of electric light, in view of the possible formation of a local company for a general scheme of electric lighting. A very interesting scheme for the statuary of the cathedral has been prepared and approved by the committee. The carving of the tympana over the two western doors has already been begun. The committee have received from the architect and the contractor the assurance that the cathedral will be completed by May 1st next.

Bradford Market Extension.—The foundation stone of the extension of the Rawson Place Corporation Markets in Bradford was laid recently. For some time the Corporation have realised the inadequacy of the present buildings, and have been gradually acquiring the adjoining property. They have also decided on the widening of John Street, thus giving improved access to the markets from the Westgate side. The new buildings will consist of ten shops, fronting Rawson Square, Norgate, and James's Street, with the reconstruction of the "Jolly Butchers" Inn at the junction of Northgate and Rawson Square. The new market hall will be 92ft. by 57ft., and the estimated cost of the buildings is £23,000. The architects are Messrs. T. C. Hope & Son, and the contracts have been let as follows:—Mason, Messrs. Thomas Obank & Sons, Idle; joiner, Messrs. E. Fearnley & Sons, Bradford; iron-founders, Messrs. Taylor & Parsons, Bradford; plumber, Mr. Albert Ross, Shipley; painter, Mr. Arthur Wear, Bradford; plasterer, Messrs. Crabtree & Perry, Bradford; slater, Messrs. W. H. & E. Walton, Bingley; roof glazing, Messrs. Helliwell & Co., Brighouse.

The Historic Ruin of the Castle of Gaskhall, on the estate of Sir Robert Moncreiffe, in Strathearn, has collapsed. The old ruin was where the lords of Strathearn resided, but its age is lost in antiquity. Only the archway of the great hall now remains standing.

The High Altar of the new Westminster Cathedral has been placed in its position under the sanctuary dome. It is the gift of the Hon. G. Savile, and is of one solid stone, weighing 12 tons, of grey granite from Cornwall, unpolished but fine-axed. The work of surmounting it with the Baldacchino will be proceeded with at once.

Tenders.

Information from accredited sources should be sent to "The Editor" at latest by noon on Monday if intended for publication in the following Wednesday's issue. Results of Tenders cannot be accepted unless they contain the name of the Architect or Surveyor for the work.

Addressed postcards on which lists of tenders may be stated will be sent post free on application to the Manager, BUILDERS' JOURNAL, *Effingham House, Arundel Street, Strand, W.C.*

Brandon (Suffolk).—For the erection of a new post office at Brandon, Suffolk. Mr. James Farley, architect, Old Cross, Hertford:—

J. H. & F. Mann, Thetford	£1,578 10
Nash & Nash, Thornton Heath	1,576 0
J. Holmes, Norwich	1,550 0
E. West, Chelmsford	1,539 0
R. Dye, King's Lynn	1,497 0
R. Shanks, Chatteris	1,450 0
G. Jackson, Sutton	1,450 0
J. G. Coweil, Soham	1,446 0
G. W. Hawes, Norwich	1,399 0
J. Parren & Son,* Earith, St. Ives, Hunts	1,251 0
S. Hipwell & Co, Wisbech	1,150 0

* Accepted.

Bristol.—For the erection of north aisle and vestry to Fishponds Parish Church. Mr. E. H. Lingen Barker, architect:—

Church	£2,061	Clark,* Fishponds	£1,636
Stephens & Bastow	1.943	Walters	1,616
Hayes	1,749		

* Accepted. [Rest of Bristol.]

Carlton (Notts).—For the erection of isolation hospital at Carlton, for the Worksop and Blyth and Cuckney District Isolation Committee. Mr. Fred Hopkinson, architect, 40 Bridge Street, Worksop:—

G. Rowsell, Worksop	£6.592 0
Cahill & Leverton, Worksop	6,590 6
G. Bowles & Son, Worksop	6,575 0
H. Vickers, Ltd., Nottingham	5,990 0
G. Wright, Worksop	5,250 0
H. Vickers & Son, Nottingham	5,166 0
D. Gill & Son, Doncaster	4,977 0
C. Green & Co., Rotherham	4,895 0
G. Holdsworth & Son, Gildersome, Leeds	4,778 0
C. Ilett & Sons,* Worksop	4,745 0

* Accepted. [Architect's estimate, £4,920.]

Honiton (Devon.)—For the construction of new sewers and outfall works at Sidforth, for the Honiton Rural District Council. Mr. Edward George Warren, surveyor, Commercial Chambers, Exeter:—

Ellis, North Tawton	£1.594 10
Neal, Plymouth	1,367 0
Hawking & Best, Teignmouth	1,300 0
Sennett, Plymouth	1,272 0
Pike, Torquay	1,200 0
Mudge, Exeter	1,150 0
Harris,* Clyst Hydon	1,098 0

* Accepted. [Surveyor's estimate, £1,194 19s.]

Ilford.—For the erection of a domestic economy centre, for the Ilford School Board. Mr. C. J. Dawson, F.R.I.B.A., architect, 7 Bank Buildings, Ilford:—

F. Gowen, Barkingside	£2,397 0 0
Wilson	1,850 0 0
Hammond & Miles	1,634 14 6
H. C. Horswill, Stratford	1,597 0 0
Thompson & Co.	1,573 10 0
S. Coffin & Son, London, S.W.	1,378 0 0
S. Parmenter, Braintree	1,375 0 0
J. Appleby, London, S.E.	1,367 0 0
S & E. Moss, Southend	1,340 10 0
Sims & Woods, Gray's Inn Road, W.C.	1,296 0 0
F. Willmot	1,245 0 0
H. S. Porter*	997 17 6

* Accepted subject to enquiries being satisfactory. [Rest of Ilford.]

Ilford.—For the erection of Loxford Hall boys' and girls' school, for the Ilford School Board. Mr. C. J. Dawson, F.R.I.B.A., architect, 7 Bank Buildings, Ilford:—

School buildings.

W. J. Maddison, Canning Town	£12,026
McCormick & Sons, Essex Road, N.	11,781
S. Parmenter, Braintree	11,662
A. Reed, Stratford	11,400
Thomas & Edge, Woolwich	11,200
Kirk & Randall, Woolwich	11,146
Gregar & Son, Stratford	11,096
H. J. Carter, Grays, Essex	10,923
J. Appleby, London, S.E.	10,844
Hammond & Son, Romford	10,677
G. Coffin & Son, London, S.W.	10,603
Lawrence, Walker & Son, Waltham Cross	10,644
F. Willmott, Ilford*	10,375

Boundary walls, drains, &c.

W. J. Maddison	£1,699
McCormick & Sons	1,674
A. Reed	1,600
Thomas & Edge	1,490
S. Parmenter	1,444
J. Appleby	1,440
Kirk & Randall	1,437
Gregar & Son	1,410
H. J. Carter	1,409
Lawrence, Walker & Son	1,350
Hammond & Son	1,318
G. Coffin & Son	1,240
F. Willmott	1,155

* Accepted subject to enquiries being satisfactory.

London.—For the erection of the Chelsea Dispensary, Manor Street, S.W. Messrs. Arthur W. Sheppard, A.R.I.B.A., and J. F. Burkinshaw, architects, 21 John Street, Adelphi, W.C. Quantities by Messrs. Robinson & Roods, 8 New Court, Lincoln's Inn, W.C.:—

W. J. Picken	£3,150 0
Foster & Dicksee	2,992 0
Holliday & Greenwood	2,837 0
W. Norton	2,764 10
Cropley Brothers	2,637 0
Osward Craske	2,565 0
Peacock Brothers	2,516 0
Stimpson & Co.*	2,440 0

* Recommended for acceptance.

Loughborough.—For the erection of Howard Street School. Messrs. Barrowcliff & Allcock, architects, Mill Street, Loughborough:—

C. Wright, Leicester	£4,350 0 0
W. Moss & Sons, Ltd.	4,302 0 0
W. F. Harding	4,230 0 0
C. A. Dobson	4,207 10 0
Watson & Camm	4,168 15 6
T. Barker & Son	4,096 0 0
W. Corah	4,000 0 0
A. Faulks*	3,995 0 0

* Provisionally accepted. [Rest of Loughborough.]

Market Weighton (Yorks).—For the erection of a police station and court house at Market Weighton, for the Standing Joint Committee of the East Riding of the county of York. Mr. Alfred Beaumont, C.E., county surveyor, County Hall, Beverley:—

T. S. Ullathorne, Selby	£2,649 0
W. Barnes, Bridlington	2,572 0
G. Shutt, Pocklington	2,461 19
G. Pape & Sons, Beverley	2,397 0
J. Hudson,* Market Weighton	2,375 12

* Accepted.

Middlesex.—For the construction of light railways, for the Middlesex County Council. Mr. H. T. Wakelam, M.I.C.E., county engineer:—

Railway No. 1.—Lordship Lane and Bruce Grove.

J. A. Dunmore	£52,946 19 0
R. C. Brebner & Co.	43,846 9 4
Kirk & Randall	37,830 5 4
A. Porter	37.311 13 4
W. L. Meredith & Co.	36,944 2 4
Binns	36,412 9 8
C. Wall	36,068 6 4
R. W. Blackwell & Co.	35,584 1 0
P. Smith	33,483 10 8
T. Adams	33,414 17 2
A. Kellett & Sons	32,982 6 4
E. Nuttall	32,326 6 8
Macartney, McElroy & Co.	31,754 8 2
J. A. Ewart	30,983 17 4
A. Faulkes	30,374 15 8
W. Manders	30,216 16 6
Dick, Kerr & Co.	28,498 18 6
J. G. White & Co., Ltd., if English rails	28,380 9 9
W. Griffiths & Co., Ltd.	28,336 13 0
W. Griffiths & Co., Ltd.*	28,329 3 8
J. G. White & Co., Ltd.	28,232 1 0

Railway No. 3.—Archway Road and Great North Road.

R. C. Brebner & Co.	£86,740 17 4
W. L. Meredith & Co.	70,628 3 5
Kirk & Randall	67,658 17 2
R. W. Blackwell & Co.	63,298 19 2
P. Smith	61,403 5 8
C. Wall	61,337 13 10
E. Nuttall	59,086 18 6
A. Kellett & Sons	58,989 9 6
Macartney, McElroy & Co.	57,585 1 6
J. A. Ewart	56,580 12 8
A. Faulkes	54 964 12 5
Dick, Kerr & Co.	50,644 0 2
W. Griffiths & Co., Ltd*	50,224 16 3
J. G. White & Co., Ltd.	50,022 3 1

Railway No. 5.—Edgware Road.

R. C. Brebner & Co.	85,278 8 10
W. L. Meredith & Co.	72,339 6 8
Kirk & Randall	67,598 17 8
R. W. Blackwell & Co.	66,857 7 11
H. Morecroft	64,927 10 0
P. Smith	61,665 15 0
A. Kellett & Sons	60,431 14 4
C. Wall	59,992 0 10
E. Nuttall	59,990 3 4
Macartney, McElroy & Co.	58,184 8 7
J. Mowlem & Co.	57,965 4 1
J. A. Ewart	57,039 10 0
W. G. Wimpey	55,271 4 8
Dick, Kerr & Co.	50,367 6 6
W. Griffiths & Co., Ltd.	50,221 16 11
J. G. White & Co., Ltd.*	49,881 10 5
J. G. White & Co., Ltd.	49,537 5 5

* Tenders recommended for acceptance. English rails to be supplied.

Plymouth.—For the erection of block No. 4, fronting Looe Street, in connection with the Housing of the Working Classes Act, 1890, for the Corporation of Plymouth. Mr. James Paton, borough engineer and surveyor:—

J. P. Berry	£7,838	A. Andrews	£6,925
J. Endean	7,584	A. N. Coles	6,819
W. E. Blake	7,456	J. Cockerell	6,799
Pearce Brothers	7,212	Wakeham Brothers	6,799
A. R. Lethbridge & Son	6,935	T. May	6,755
		S. Roberts*	6,306

* Accepted. [All of Plymouth.]

Purley (Surrey).—For house at Purley. Mr. F. Owen Moore, architect, 12, Cornford Grove, Balham, S.W.:—

W. Manning	£1,698 0 0
W. Roberts	1,397 0 0
J. Robinson	1,234 0 0
W. Walker	1,205 0 10
W. Smith & Son	1,189 0 0
J. Westbrooke	1,140 0 0
E. Smart & Son	1,124 10 6
W. H. Baldwin	1,118 15 0
A. G. Wright	1,110 13 5
W. H. Chapman & Son	1,096 0 0
W. Hine	1,071 1 6
E. Goulder (Exors. of)	1.070 0 0
J. S. Simmons & Co.	1,050 0 0
Gathercole Brothers,* London Road, Norbury	1,029 0 0

* Accepted.

Rushden.—For villa residence and stable, &c., to be built at Rushden, for Mr. George Selwood. Quantities by Mr. Harry Knight, Rushden:—

			†
C. E. Bayes	£1,050 0 0		—
T. Willmott	1,023 0 0		—
G. Johnson	1,010 18 0		£16
H. Sparrow	1,003 0 0		12
Hacksley Brothers	975 0 0		13
T. Swindall	935 0 0		—
J. Titmus	891 15 6		14
W. Packwood,* Rushden	875 10 0		12

* Accepted. † Extra for stone bay.

Shirley (Southampton).—For the construction of roads, sewers and wood fencing on the Alexandra Park Estate, for the County of Hants Land and Building Society, Ltd. Mr. William Burrough Hill, F.S.I., surveyor, Southampton:—

Roads and sewers.

H. J. Hood	£2,994 0 0
S. Saunders, London	2,480 0 0
Plascott & Son	2,395 0 0
J. C. Trueman, Swanley, Kent	2,299 0 0
J. Nichols	2,252 0 0
Douglas & Richards	2,222 0 0
F. Osman	2,166 0 0
J. F. Butt*	2,110 18 3

[Surveyor's protecting estimate, £2,175.]

Wood fencing.

Lunn Brothers, Brockenhurst	270 11 0
Plascott & Son	270 0 0
F. Osman	266 0 0
Fletcher & Co.,* Eling, Southampton	238 3 0
J. Sandy	222 0 0

[Surveyor's protecting estimate, £215.]

* Accepted. [Rest of Southampton.]

Southborough (Kent).—For the erection of new schools, for Southborough School Board. Mr. C. H. Strange, architect. Quantities by Mr. Henry Elwig, Tunbridge Wells:—

Punnett & Son	£8,148
Turner & Co.	8,135
Crates & Son	8,000
Goodwin Brothers	7,719
J. Jarvis	7,253
Davis & Leaney	7,199
Gann & Co.	7,160
Leney & Son	6,999
Martin & Co.	6,954
Strange & Sons,* Tunbridge Wells	6,848

* Provisionally accepted.

Southend-on-Sea.—For the erection of viaduct, for the Southend Gas Company:—

W. A. Baker & Co., Ltd., Newport, Mon.	£9,250 0 0
Head, Wrightson & Co., Ltd., Thornaby-on-Tees	7,691 13 7
G. Thompson & Co., Birmingham	7,307 0 0
Jones's Ironfoundries and Engineering Co., Ltd., London, E.C.	6,999 0 0
Mayoh & Haley, London, W.C.	6,400 0 0
A. Fasey & Son, Leytonstone, E.	6,300 0 0
Clayton, Son & Co., Ltd., Huntslet, Leeds	6,280 0 0
S. Cutler & Sons, Milwall, E.	6,261 10 0
Jukes, Coulson, Stokes & Co., St Leonard's Ironworks, Bromley-by-Bow, E.	6,099 0 0

West Ham.—For making up the following streets, for he West Ham Urban District Council:—Inniskilling Road, Jedburgh Road (part). Upperton Road (part), Sutton Court Road (part), Haig Road (part). Mr. John G. Morley, borough engineer:—

Lawrence & Thacker, 41 Lavender Gardens, Clapham Common, S.W.	£2,747 0 0
J. Jackson, Broadway, Plaistow	2,194 6 8
W. H. Wheeler, 235 Blackfriars Road, S.E.	2,171 3 9
T. Adams, Green Lanes Goods Station, Wood Green	2,160 12 11
W. Griffiths & Co., Ltd., Hamilton House, Bishopsgate Street	2,160 3 9
G. J. Anderson, 26 North Street, Poplar	2,033 2 5
W. Manders, Leyton	1,892 5 9
D. T. Jackson, 104 Ripple Road, Barking	1,850 6 0
Parsons & Parsons,* Ilford Wharf, Ilford	1,838 17 7

* Accepted.

Complete List of Contracts Open.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDERS MAY BE OBTAINED.
	BUILDING:		
Nov. 6	Bishop Auckland - Isolation Hospital	Hospital Board	W. Perkins, Architect, Victoria Street, Bishop Auckland.
" 6	Bangour, Scotland—Lunatic Asylum Blocks	Edinburgh District Lunacy Bd.	A. Ferrier, Clerk, Castle Terrace, Edinburgh.
" 6	Hebden Bridge, Yorks—Alterations, &c., to Inn		J. F. Walsh & G. Nicholas, Museum Chambers, Halifax.
" 6	Kinsale, Ireland—Thirteen Cottages	Rural District Council	J. Murphy, Clerk, Workhouse, Kinsale.
" 6	Llandudno—Alteration, &c., to Landing Stage	Pier Co., Ltd.	J. J. Webster, 39 Victoria Street, Westminster.
" 6	Cluny, Scotland—Additions, &c., to Hotel House, &c.		A. Mackenzie, Architect, County Buildings, Kingussie.
" 6	Nash Point, Glamorgan—Fog Signal House, &c.	Corporation of Trinity House	Corderoy, Selby & Corderoy, Quantity Surveyors, 21 Queen Anne's Gate, Westminster, S.W.
" 6	London, E.—Joinery Work at Workhouse	St. George's-in-the-East Guardians	R. S. Tasker, 58 John Street, Bedford Row, W.C.
" 7	Middlesbrough—Stable and Cart Shed, &c.	Parks Committee	F. Baker, Borough Engineer, Municipal Buildings, Middlesbrough.
" 8	Ballinasloe, Ireland—Drying Room, &c.	Asylum Committee	J. Young, Clerk, Asylum, Ballinasloe.
" 8	Batley—Restoration and Alterations of Town Hall	Corporation	W. Hanstock & Son, Architects, Branch Road, Batley.
" 8	Blairgowrie, Scotland—Hospital		L. & J. Falconer, Architects, Blairgowrie.
" 8	Bridgend—Office for Surveyor at Town Hall	Glamorgan County Council	County Surveyor, Town Hall, Bridgend.
" 8	Fermoy, Ireland—Labourers' Cottages, &c.	Rural District Council	P. O'Neill, Clerk, Council Office, Fermoy.
" 8	Stockport—Addition to Tramcar Sheds	Tramways Committee	J. Atkinson, Borough Surveyor, St. Petersgate, Stockport.
" 8	Dublin—Cement, Slates, Firebricks, &c.	Gt. Northern Ry. Co. (Ireland)	T. Morrison, Secretary, Amiens Street Terminus, Dublin.
" 8	Gowna, co. Cavan—Catholic Church	Very Rev. M. Corcoran, P.P.	Hague & McNamara, 50 Dawson Street, Dublin.
" 8	Warnham—Repairs, Painting, &c., to Cottages, &c.	King & Sons, Ltd.	C. H. Burstow, 6 West Street, Horsham.
" 8	Hull—Mortuary, Post-mortem Rooms, &c.	Victoria Hosp. for Sick Children	W. H. Bingley, Architect, Custom House Buildings Hull.
" 8	Plymstock—Alterations, &c., to School	School Board	H. J. Snell, 11 The Crescent, Plymouth.
" 10	London, N.—Alterations to Strong Room, &c.	Islington Borough Council	J. P. Barber, Borough Engineer, Town Hall, Upper St., Islington.
" 10	Walsall—Cartsheds, &c.	Rural District Council	F. W. Mager, District Surveyor, Aldridge, Walsall.
" 10	Manchester—Boundary Wall and Foundations	Electricity Committee	City Surveyor, Town Hall, Manchester.
" 10	Preston, Lancs—Widening Bridge	County Council	County Bridgemaster, Preston.
" 10	Walsall—Caretaker's House	School Board	Bailey & McConnall, Architects, Bridge Street, Walsall.
" 11	Hampton, Middlesex—Fifty-five Cottages	Urban District Council	S. H. Chambers, Surveyor, Public Offices, Hampton.
" 11	Barnsley—Outbuildings and Conveniences		J. H. Taylor, Borough Surveyor, Manor House, Barnsley.
" 11	London, N.W.—Additions, &c., at Polytechnic	Middlesex County Council	H. T. Wakelam, Co. Architect, Middlesex Guildhall, Westminster.
" 11	Newton Abbot, Devon—Nurses' Home	Union Guardians	S. Segar, Architect, Union Street, Newton Abbot.
" 12	Cardiff—Cash Offices	Corporation	W. Harpur, Borough Engineer, Cardiff.
" 12	London, S.W.—Two Jetties, &c.	Westminster City Council	Works Department, City Hall, Charing Cross Road, S.W.
" 12	Norwood—Outside Staircases at Schools	Lambeth Guardians	W. Thurnall, Clerk, Brook Street, Kennington Road, S.E.
" 13	West Green, Crawley—Alterations, &c., to House		W. Buck, Architect, Horsham.
" 13	Hampstead, N.W.—Stabling, Boundary Wall, &c.	Borough Council	O. E. Winter, Borough Engineer, Town Hall, Haverstock Hill, N.W.
" 13	Parkestone, Essex—Schools, &c.	Ramsey School Board	J. W. Start, Architect, Colchester.
" 15	Bromsgrove, Worcs—Lunatic Asylum	County Council	R. J. Oliver, Clerk, Shirehall, Worcester.
" 15	Birmingham—Sanitary Projections to School	Aston Union Guardians	C. Whitwell, 23 Temple Row, Birmingham.
" 15	Braintree, Essex—Master's Quarters, &c.	Union Guardians	F. Smoothy, 1 New Street, Braintree.
" 17	Ballybeg, Ireland—Station Building	Gt. Northern Ry. Co. (Ireland)	Company's Engineer-in-Chief, Amiens Street Terminus, Dublin.
" 17	Bootle, Lancs—Cart Sheds, &c.	Corporation	Borough Engineer, Bootle.
" 17	Derby—Alterations, &c., to School	School Board	F. S. Antliff, Architect, Draycott, Derby.
" 17	London, W.—Convenience	Paddington Borough Council	E. B. Newton, Borough Surveyor, Town Hall, Paddington, W.
" 17	Croydon—Two Cottages, &c.	Borough Council	Borough Engineer, Town Hall, Croydon.
" 17	Chelmsford—Cottage Homes	Union Guardians	Chancellor & Son, Architects, Chelmsford.
" 18	Sheffield—Shed for Storage of Lime, &c.	Health Committee	C. F. Wike, City Surveyor, Town Hall, Sheffield.
" 18	Dartford—Additions to School	School Board	H. Hall, 19 Doughty Street, London, W.C.
" 19	Hull—Alterations, &c., to Station	North Eastern Railway Co.	W. Bell, Company's Architect, York.
" 19	Dartford—Home for Female Attendants	Metropolitan Asylums Board	Newman & Newman, 31 Tooley Street, London Bridge, S.E.
" 19	Bristol—Homes, with Hall, &c.	Guardians	J. J Simpson, Clerk, St. Peter's Hospital, Bristol.
" 20	Nottingham—Station Buildings	Midland Railway Co.	Engineer, 22 Park Road, Nottingham.
" 21	Londonderry—Buildings at Asylum	Committee of Management	M. A. Robinson, Architect, Richmond Street, Londonderry.
" 21	Grove Point, Portland—Coastguard Buildings	Admiralty	Director of Works Department, Admiralty, Northumberland Avenue, W.C.
" 22	Pontypridd—Generating Station, Car Sheds and Offices	Urban District Council	R. P. Wilson 66 Victoria Street. Westminster.
" 24	Hanwell, W.—Alterations, &c., to Schools	School Board	W. Pywell, Architect, Cumberland House, Hanwell, W.
" 26	Swansea—School	School Board	A. W. Halden, Clerk, School Bd. Offices, Dynevor Place, Swansea.
Dec. 1	Didcot—Alterations and Additions to School	School Board	Hoare & Wheeler, 7 Friar Street, Reading.
	ENGINEERING:		
Nov. 6	Cromer—Well	Urban District Council	J. C. Melliss, 264 Gresham House, Old Broad Street, London, E.C.
" 7	Occold, near Eye, Suffolk—Sinking Well, &c.	Hartismere R.D.C.	L. Moss, Inspector of Nuisances, Thornham Parva, near Eye.
" 7	Stowe—Repairing Bridge	Rural District Council	T. R. Hearn, 26 West Street, Buckingham.
" 8	Newcastle-upon-Tyne—Engine	Tramways Committee	A. E. Le Rossiquol, General Manager, Manors Power Station, Newcastle-upon-Tyne.
" 8	Swindon—Pumping Plant	Corporation	Borough Surveyor, Town Hall, Swindon, Wilts.
" 8	Huntingdon—Alterations at Waterworks	Urban District Council	R. E. Midleton, 17 Victoria Street, Westminster.
" 8	Dewsbury—Electric Wiring		R. H. Campion, Borough Elec. Engineer, Bradford Rd., Dewsbury.
" 10	Belfast—Stonebreaker	Improvement Committee	City Surveyor, Belfast.
" 12	Leytonstone—Exhaust Interheater	Union Guardians	J. Buley, Engineer, Suffolk House, Laurence Pountney Hill, E.C.
" 12	Manghold, I.M.—Driving Adit at Mine		F. Saunderson, 7 Athol Street, Douglas, I.M.
" 12	West Hartlepool—Trenching	Gas and Water Co.	Martin & Fenwick, 1 Park Place, Leeds.
" 14	St. Petersburg—Electric Traction on Tram Lines	Stadt Amt (Town Council)	Stadt Amt, St. Petersburg, Russia.
" 14	Leeds—Aqueduct Tunnel	Corporation	City Engineer, Leeds.
" 14	Bristol—Arc Cables	Electrical Committee	H. F. Proctor, City Electrical Engineer, Temple Back, Bristol.
" 14	Radcliffe, Lancs—Electrical Plant	Urban District Council	J. Sharples, Clerk, Council Offices, Radcliffe.
" 15	Harrogate—Tunnel	Corporation	E. W. Dixon, 14 Albert Street, Harrogate.
" 17	Newry, &c., Ireland—Reconstructing Bridges	Gt. Northern Rly. Co. (Ireland)	Company's Engineer-in-Chief, Amiens Street Terminus, Dublin.
" 17	Watchet, Somerset—Harbour Works	Urban District Council	W. T. Douglass, 15 Victoria Street, Westminster.
" 18	London, S.E.—Laying Electric Tramways	London County Council	Engineer's Department, County Hall, Spring Gardens, S.W.
" 18	London, S.E.—Electric Crane	London County Council	County Hall, Spring Gardens, S.W.
" 18	Manchester—Widening Railway	Lancs and Yorks Rly. Co.	Engineer, Hunt's Bank, Manchester.
" 19	Southampton—Steel Superstructure of 3 Bridges, &c.	County Council	W. J. Taylor, County Surveyor, The Castle, Winchester.
" 19	Enniscorthy, Ireland—Fuel Economiser		Resident Medical Superintendent, District Asylum, Enniscorthy.
" 20	Southend-on-Sea—Sea Walls, &c.	Corporation	Borough Engineer, Municipal Offices, Southend.
" 28	Crajora—Water Supply		W. H. Lindley, Frankfort-on-Maine, Germany.
" 28	Sunderland—Electric Plant	Corporation	J. F. C. Snell, Town Hall, Sunderland.
" 28	Burton-on-Trent—Inclined Retort Plant	Corporation	F. L. Ramsden, Manager, Gas & Electricity Light Works, Burton upon-Trent.
" 29	Manchester—Reconstruction of Bridge		City Surveyor, Town Hall, Manchester.
" 30	Shanghai—Electric Lighting	British Municipal Councils	Office of the Board of Trade, 50 Parliament Street, S.W.
Dec. 1	Dumfries, Scotland—Electric Lighting	Town Council	J. Grierson, Town Clerk, Dumfries.
" 2	Adelaide, South Australia—Harbour		Agent-General for South Australia, 1 Crosby Square, London.
" 10	Harwich—Dredging Harbour	Harbour Conservancy Board	T. Miller, 9 Thoroughfare, Ipswich.
" 13	Madrid—Canal Reservoir		Office of the Ministry of Agriculture, Commerce and Public Works, Madrid.
" 15	Monte Video, Uraguay—Sanitary Works	Uraguayan Government	Consulate-General of Uraguay, Edinburgh Mansions, Howick Place, Victoria Street, S.W.
" 20	Alexandria, Egypt—Steamer		Inspector of Irrigation, Third Circle, Alexandria.
	FURNITURE:		
Nov. 10	Canterbury—Furniture at Asylum	Corporation	Dr. N. Lavers, Medical Superintendent, Borough Asylum, Stone House, Canterbury.
" 10	South Brent, Devon—Furnishing Sanatorium		J. Walling, Bedford Street, Plymouth.
" 14	Wimbledon—Furniture	Public Library Committee	H. W. Bull, Librarian, Public Library, Hill Road, Wimbledon.
	IRON AND STEEL:		
Nov. 6	Peterborough—Pipes	City Council	J. W. Walshaw, City Surveyor, Guildhall, Peterborough.
" 8	Dublin—Railway Stores	Gt Northern Rly. Co. (Ireland)	T. Morrison, Secretary, Amiens Street Terminus, Dublin.
" 10	Cowes, I.W.—Pipes	Urban District Council	J. W. Webster, Engineer, High Street, Cowes.
" 10	London, S.W.—Fencing	Barnes Urban District Council	G. B. Tomes, Engineer, Council Offices, High St., Mortlake, S.W.
" 10	London, E.C.—Railway Stores	Madras Railway Co.	J. Byrne, 61 New Broad Street, E.C.

COMPLETE LIST OF CONTRACTS OPEN—*continued.*

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDERS MAY BE OBTAINED.
	IRON AND STEEL—*continued.*		
Nov. 11	Christiania—Railway Stores	State Railways	Superintendent of Engineering Department, Christiania.
„ 14	Swindon—Fence	———	Borough Surveyor, Town Hall, Swindon.
„ 14	Valetta, Malta—Pipes, &c.	———	Crown Agents for the Colonies, Downing Street, London.
„ 17	Birmingham—Stores	Water Committee	E. A. Lees, 44 Broad Street, Birmingham.
„ 18	London, S.E.—Iron Fencing	Lewisham Borough Council	E. Wright, Town Clerk, Town Hall, Catford, S.E.
„ 19	Hull—Iron and Steel Work for Station	North-Eastern Railway Co.	W. Bell, Company's Architect, York.
„ 20	Witton, Birmingham—Stores	Kynoch, Ltd.	F. Huscham, Secretary, Lion Works, Witton, Birmingham.
	PAINTING AND PLUMBING:		
Nov. 8	Dublin—Colours, Brushes, Varnishes, Lead Oil, &c.	Gt. Northern Rly. Co. (Ireland)	T. Morrison, Secretary, Amiens Street Terminus, Dublin.
„ 17	Birmingham—Lead Piping, Paints, Oils, &c.	Water Committee	E. A. Lees, 44 Broad Street, Birmingham.
„ 20	Witton, Birmingham—Putty, Red Lead, White Lead, Oils, &c.	Kynoch, Ltd.	F. Huxham, Secretary, Lion Works, Witton, Birmingham.
„ 24	Belfast—Plumbing Works, &c.	Lunatic Asylum Committee	Graeme-Watt & Tulloch, 77A Victoria Street, Belfast.
	ROADS AND CARTAGE:		
Nov. 7	Poole—Making-up	———	J. Elford, Borough Surveyor, Poole.
„ 7	Salterhebble, Halifax—Paving and Draining, &c.	———	Jackson & Fox, Surveyors, Rawson Street, Halifax.
„ 8	Leeds—Paving, &c.	Corporation	City Engineer, Municipal Buildings, Leeds.
„ 10	Brighouse, Yorks—Road Works	———	S. S. Haywood, Borough Surveyor, Brighouse.
„ 10	Blaengwynfi—Private Street-improvement Works	Glyncorrwg U.D.C.	W. P. Jones, Surveyor, Council Offices, Cymmer, Port Talbot.
„ 11	Llanmartin, Wales—Improving Highway	Magor R.D.C.	I. Thomas, Clerk, Union Offices, Queen's Hill, Newport, Mon.
„ 11	Dartford—Making-up, &c.	Urban District Council	W. Harston, 8 Hythe Street, Dartford.
„ 11	Long Crendon, Bucks—Granite	Rural District Council	W. Parker, 2 High Street, Thame.
„ 12	Mansfield—Street Improvement Works	Town Council	R. F. Vallance, Borough Surveyor, Mansfield.
„ 12	Birkenhead—Flagging, Paving, &c.	Corporation	C. Brownridge, Borough Surveyor, Town Hall, Birkenhead.
„ 12	Northallerton Road, &c.	Rural District Council	Fairbank & Son, Engineers, Lendal Chambers, York.
„ 17	Swindon—Traction Wagon	———	Borough Surveyor, Town Hall, Swindon.
„ 19	Southampton—Road	County Council	W. J. Taylor, County Surveyor, The Castle, Winchester.
„ 19	Croydon, Making-up, &c.	Rural District Council	R. M. Chart, Surveyor, Town Hall, Croydon.
„ 24	Middlesbrough—Flags and Kerbs	Corporation	Borough Engineer, Municipal Buildings, Middlesbrough.
	SANITARY:		
Nov. 7	Egremont, Cumberland—Sewers, &c.	Urban District Council	Surveyor, Town Hall, Egremont.
„ 8	Dublin—Sewer Pipes, &c.	Gt. Northern Rly. Co. (Ireland)	T. Morrison, Secretary, Amiens Street Terminus, Dublin.
„ 10	Brighouse, Yorks—Sewering	Corporation	S. S. Haywood, Borough Engineer, Brighouse.
„ 10	Walsall—Sewer	Rural District Council	F. W. Mager, District Surveyor, Aldridge, Wallsall.
„ 10	Trowbridge, Wilts—Sewerage Works	Urban District Council	H. G. Nicholson-Lalley, Town Surveyor, Town Hall, Trowbridge.
„ 11	Epsom—Sewerage Extensions	Rural District Council	H. H. S. Wood, 157 Wool Exchange, Coleman Street, E.C.
„ 11	Shrewsbury—Sewer, &c.	Sanitary Committee	W. C. Eddowes, Borough Surveyor, The Square, Shrewsbury.
„ 11	Market Harborough—Sewers	Rural District Council	J. B. Everard, 6 Millstone Lane, Leicester.
„ 12	Mansfield—Sewer, &c.	Town Council	R. F. Vallance, Borough Surveyor, Mansfield.
„ 18	Ilfracombe, Devon—Sewage Outfalls, &c.	Urban District Council	Engineer, Town Hall, Ilfracombe.
„ 18	Kirkcaldy, Scotland—Sewerage Works	Fife County Council	W. D. Sang, Engineer, Kirkcaldy.
„ 24	Stapleford—Scavenging	Rural District Council	F. W. Fox, Clerk, Bank Chambers, Beastmarket Hill, Nottingham.
„ 24	Lewes—Sewer	Town Council	Borough Surveyor, Town Hall, Lewes.
Dec. 15	Monte Video—Sanitary Works	Government of Uruguay	Uruguay Legation, London.
	TIMBER:		
Nov. 8	Dublin—Timber	Gt. Northern Rly. Co. (Ireland)	T. Morrison, Secretary, Amiens Street Terminus, Dublin.
„ 17	Croydon—Oak Park Fencing	Borough Council	Borough Engineer, Town Hall, Croydon.
„ 20	Witton, Birmingham—Timber	Kynoch, Ltd.	F. Huxham, Secretary, Lion Works, Witton, Balham.

List of Competitions Open.

DATE OF DELIVERY.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Nov. 29	Ramsgate—Technical Schools and Free Library	£50, £25, £15.	T. G. Taylor, Borough Surveyor, Albion House, Ramsgate.
Dec. 1	Arundel, Sussex—Laying-out Land	£50, £20.	A. Holmes, Town Clerk, Arundel.
„ 1	Chadderton—Free Library	———	G. Taylor, Clerk to U.D.C., Town Hall, Chadderton.
„ 2	Holyhead—Schools and Teacher's House	———	R. E. Pritchard, Clerk to School Board, Holyhead.
„ 12	Eccles—Laying-out Area for Workmen's Dwellings	£50, £30, £15.	W. H. Hickson, Town Clerk, Town Hall, Eccles.
„ 18	Durban, Natal—Town Hall, Library, Museum, &c.	£500, £300, £200.	W. H. Radford, Albion Chambers, King Street, Nottingham.
„ 31	Ashton-in-Makerfield—Infectious Diseases Hospital	Urban District Council	T. Burgess, Surveyor, Council Offices, Ashton-in-Makerfield.
Jan. 31	Cape Town—University Buildings	£400, £200, £100.	Agent-General for the Cape of Good Hope, London.
„ 31	Hull—Town Hall Extension	£300, £200, £100.	E. Laverack, Town Clerk, Town Hall, Hull.
Feb. 13	Patras, Greece—Church	£400, £160, £80.	Committee for new Church of St. Andrew, Patras, Greece.
No date.	Wavertree—Church	£50.	E. Rogers, Crossley Buildings, South Castle Street, Liverpool.

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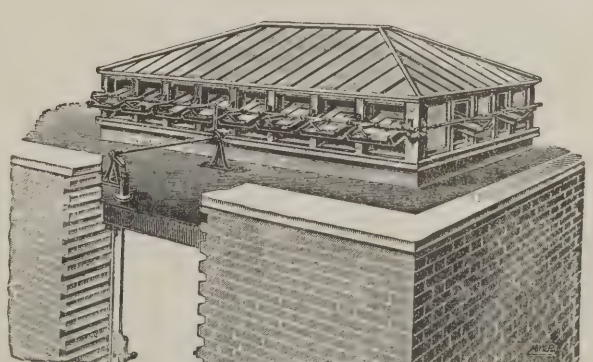
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FANLIGHT OPENERS. New Patterns.

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Coming Events.

Wednesday, Nov. 5.

ARCHITECTURAL ASSOCIATION (Discussion Section).—Mr. H. Munro Cautley on "The Buildings about a Farm," 7.30 p.m.

RUSKIN SOCIETY OF BIRMINGHAM.—Mrs. Craigie on "The Artist's Life," 7.45 p.m.

SANITARY INSTITUTE.—Inspection and Demonstrations for Sanitary Officers in the District of St. Marylebone at 3 p.m., conducted by Mr. T. Gorniot.

ROYAL ARCHÆOLOGICAL INSTITUTE.—Mr. W. H. Knowles, F.S.A., on "Blanchland Abbey, Northumberland." Mr. Philip M. Johnston on "Twelfth Century Paintings recently discovered in Claverley Church, Shropshire," 4 p.m.

BUILDERS' FOREMEN AND CLERKS OF WORKS' INSTITUTION.—Ordinary meeting at 8 p.m.

Thursday, Nov. 6.

SANITARY INSTITUTE (Lectures and Demonstrations for Sanitary Officers, Part I.).—Prof. R. Elsey Smith, on "Ventilation, Warming and Lighting," p.m.

CHEMICAL SOCIETY.—Meeting 5 p.m. Mr. H. Crompton on "The Specific Heats of Gases."

Friday, Nov. 7.

ARCHITECTURAL ASSOCIATION.—Mr. F. C. Eden on "Roof Coverings," 7.30 p.m.

GLASGOW AND WEST OF SCOTLAND TECHNICAL COLLEGE ARCHITECTURAL CRAFTSMEN'S SOCIETY.—Ordinary meeting at 204, George Street, Glasgow. Prof. Gourlay, B.Sc., A.R.I.B.A., on "The New Teaching Regulations," 8 p.m.

SANITARY INSTITUTE (Lectures and Demonstrations for Sanitary Officers, Part I.).—Mr. Max Clarke, A.R.I.B.A., on "Calculations, Measurements and Plans and Sections," 7 p.m.

Saturday, Nov. 8.

SANITARY INSTITUTE.—Inspection and Demonstration for Sanitary Officers at the Richmond Main Sewerage Pumping Station and Purification Works, Kew Gardens at 2.50 p.m., conducted by Mr. William Fairley, A.M.I.C.E.

THE CRAFT SCHOOL, 137, Globe Road, Bethnal Green, E.—Mr. C. Spooner on "The Study of Old Furniture," 8.30 p.m.

Monday, Nov. 10.

SURVEYORS' INSTITUTE.—General Meeting at 8 p.m. Opening Address by the President, Mr. Arthur Vernon.

LONDON INSTITUTION.—Prof. Sir Robert S. Ball on "The Earth's Beginning," 5 p.m.

SANITARY INSTITUTE (Lectures and Demonstrations for Sanitary Officers, Part I.).—Mr. Max Clarke, A.R.I.B.A., on "Sanitary Appliances," 7 p.m.

Tuesday, Nov. 11.

INSTITUTION OF CIVIL ENGINEERS.—Messrs Charles Hopkinson, B.Sc., M.I.C.E., Bertram Hopkinson, B.Sc., and Ernest Talbot, M.I.C.E., on "Electric Tramways," 8 p.m.

Wednesday, Nov. 12.

NORTHERN ARCHITECTURAL ASSOCIATION.—Opening Meeting at 7.30 p.m. Address by the President, Mr. F. Caws, F.R.I.B.A.

INSTITUTE OF SANITARY ENGINEERS, LTD.—Meetings of the General Purposes and Finance Committee at 4 p.m., the Election Committee at 5.15 p.m., and the Council at 7 p.m.

SANITARY INSTITUTE (Lectures and Demonstrations for Sanitary Officers, Part I.).—Mr. Max Clarke, A.R.I.B.A., on "House Drainage," 7 p.m.

Thursday, Nov. 13.

MANCHESTER SOCIETY OF ARCHITECTS.—Mr. Halsey Ricardo on "The Revival of Gothic Architecture."

Friday, Nov. 14.

SANITARY INSTITUTE (Lectures and Demonstrations for Sanitary Officers, Part I.).—Mr. J. E. Worth, M.I.C.E., on "Water Supply," 7 p.m.

Saturday, Nov. 15.

GLASGOW AND WEST OF SCOTLAND TECHNICAL COLLEGE SCIENTIFIC SOCIETY.—Meeting at 7.30 p.m.

SANITARY INSTITUTE.—Inspection and Demonstration for Sanitary Officers at the Sewage and Destructor Works, Ealing, at 2.15 p.m., conducted by Charles Jones, M.I.C.E.

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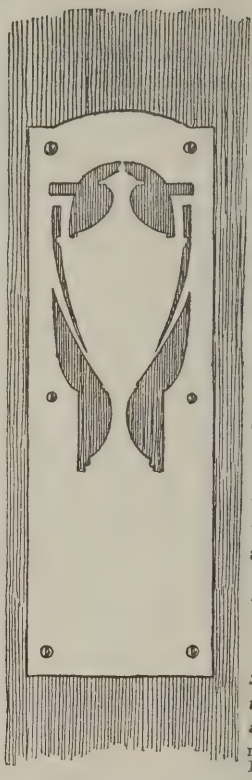
A third edition has just been issued by the New Expanded Metal Co., Ltd., of the very useful handbook dealing with their material. Expanded metal is so admirable for so many purposes that it deserves to be employed a great deal more than it is. As its name implies, it is made of sheets of metal which are mechanically slit and opened out into trellis form, the expansion varying from two to twelve times the original width of the sheet, according to the size of the meshes and the depth of the stands. The uses to which it can be put are innumerable. It is particularly adapted as lathing for plaster on walls or ceilings, and may also be employed for floors, partitions, conduits, subways, &c. Those who wish some constructional details and formulæ about this most convenient material should write to the London offices of the firm (York Mansion, York Street, Westminster, S.W.) for a copy of their handbook.

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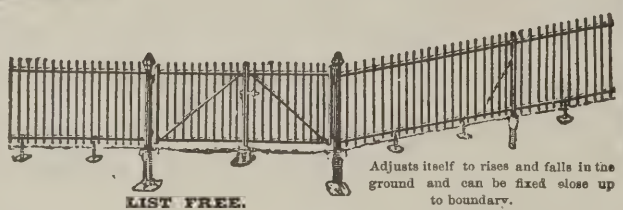
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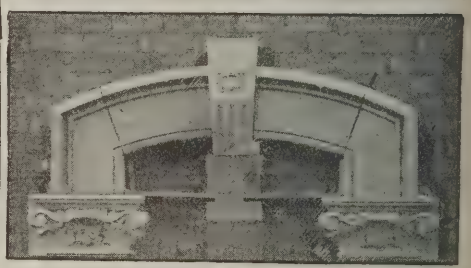
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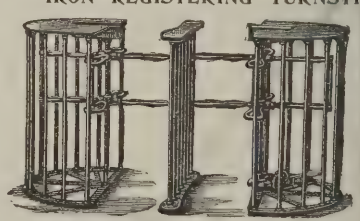
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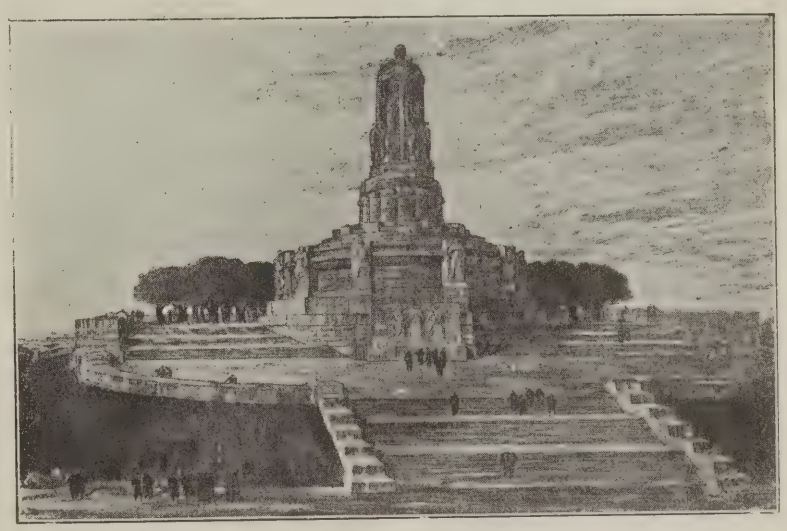
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An Architectural Causerie.

A Suggestion to Presidents. Having heard and read many dozens of presidential addresses on architecture, we have been convinced that they lose in force by being too diffuse. A president is not required to take the place of an annual report, and consequently we consider it a mistake to keep saying a little about this subject and a little about that, all of which indeed amounts to very little. We would therefore suggest to presidents that, instead of making their annual addresses a collection of chatty notes, they should take one thesis and make it the main subject of their remarks, stating their opinions boldly, with less of the gingerbread and "I venture to think" element. The British Association has set a splendid model, and we need only mention this year's presidential addresses on education to prove the efficacy of the practice. The presidents of the architectural societies throughout the kingdom should remember that they are in positions of considerable influence; but so long as the addresses which they usually deliver contain so little grit, so little definite opinion which can be grasped, they must never wonder at the comparative ineffectiveness of their words.

The New Knights. We were glad to see Dr. Rowand Anderson's name in the list of birthday honours. A few weeks ago we drew attention to the alterations which were being made under his supervision at Balmoral Castle, and doubtless his new title is in some degree connected with that work. We have now an English knight, a Scotch knight and an Irish knight in the architectural profession; to complete the list a Welsh knight is needed, though we do not call to mind any name to which the honour might deservedly be given. Architecture, after being starved, is now getting surfeited with distinction; quite regal in fact; but we are sure an architect of such abilities as Dr. Rowand Anderson will be generally esteemed worthy of his place among the knights, and we congratulate him upon it. We also note with pleasure the honour conferred on Mr. John Mowlem Burt, head of the well-known firm of contractors, Messrs. John Mowlem & Co.

Competitions Again. It is a disagreeable task to be always complaining about the conduct of architectural competitions, but, while injustices are done, there must be protests. The Holyhead School Competition is the latest. A correspondent informs us that, having seen an advertisement of it, he wrote for some particulars. In reply, the clerk to the Holyhead School Board said: "I have no instructions for competitors drawn out, but if you send me any specific questions I will reply thereto. I can give you now the following particulars:—We have no block plan of site; we have plenty of ground; ground is almost level; the three departments to be in separate buildings, 300 in each; whether buildings of stone or brick depends on the designs and specifications sent in; no caretaker's house." Our correspondent wrote for something more definite than this. It will serve no purpose to give the replies, but we may note one which stated that no premium was offered, and another that £6,000 was to be the cost of the buildings. We have known many cases where no premium was offered to competing architects, but we should have thought that by this time no school board in the kingdom would have attempted to conduct a competition without first drawing up the requisite particulars.



FIRST PREMIATED DESIGN FOR A BISMARCK MEMORIAL FOR HAMBURG.
EMIL SCHAUDT, ARCHITECT. HUGO LEDERER, SCULPTOR.

The Architectural Museum. The announcement will be read with pleasure that the Royal Architectural Museum at Westminster is to be transferred to the Architectural Association. The transfer is mutually fortunate, for it is to be expected that the museum will in future be much more extensively used, while the premises are just what the Architectural Association requires. For many years the Council of the Association have been endeavouring to obtain a building suited to their largely-increased needs, and last year a subscription list for new premises was opened, though only about a quarter of the requisite sum was received: meanwhile its accommodation at 56, Great Marlborough Street is altogether inadequate, and teaching has to be done under very unfavourable conditions. The move to Tufton Street will, therefore, be a most welcome one, for the premises comprise eight workrooms (now used by the Westminster School of Art), in addition to which the museum itself will always be handy to the students. Like the Soane Museum in Lincoln's Inn Fields, it is not so often visited as it deserves. The collection of architectural casts is quite unique and has been valued at between £20,000 and £30,000; the premises themselves have been valued at about £7,000. Many eminent names have been associated with the museum, notably those of John Ruskin, Mr. Beresford Hope and Sir Gilbert Scott (to whose initiative its foundation was largely due). Mr. J. P. Seddon, too, has done much for it—it was he who wrote "The Casquet of Jewels" and delivered lectures which made the casts live again to those who heard him. Mr. Maurice B. Adams, as honorary secretary, has zealously devoted twenty-five years of his life to the museum, and the name of Mr. Aston Webb should not be omitted in this connection. Sir William Emerson, also, has interested himself in the museum, and presided at the meeting of subscribers which was held on Friday to confirm the transfer. It should, however, be stated that the trustees of the museum have not proposed this scheme because they find themselves financially unable to maintain the musuem any longer; on the contrary, they are perfectly able to meet their liabilities, and, indeed, have made many important improvements to the museum in recent years. The transfer is to be made because it is particularly opportune and is calculated to make the collection of greater benefit to architecture: for the Association, as the most influential architectural teaching institution in the kingdom, is naturally in a far better position to make use of the museum than any independent body of trustees. We trust that the collection will be added to, and that the present arrangement of the casts will be improved upon. The annual rent for ground and premises is only £140.

THE NEW ARCHITECT.

(*Concluded from p. 191 of No. 404.*)

IN the preceding article some examples of modern domestic and street buildings in Germany were considered. We may now examine a few monumental designs, a theatre, a school, and one or two other wonders of the new school.

First, then, the monumental designs. Now it is certain that the French and the Germans know how to do this kind of work better than our own architects. As a reason for this, it has been suggested that in France and Germany the opportunities for producing monumental designs are more numerous than with us, and that consequently their architects are enabled to enrich themselves by experience. This seems very plausible on the face of it; but there really is not much proof in support of the contention, which forms such a convenient excuse for all shortcomings. No, the fact is we have plenty of opportunities for producing monumental



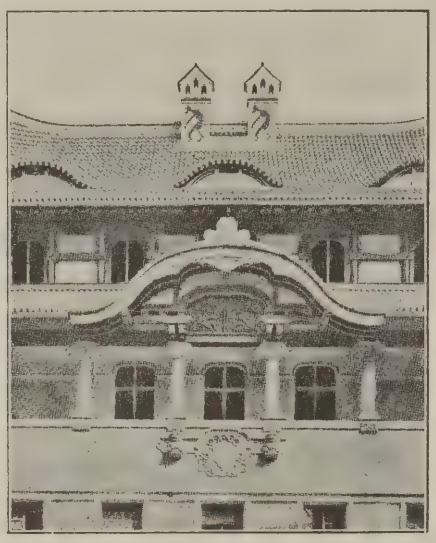
DESIGN FOR A BISMARCK MEMORIAL. J. REUTERS, ARCHITECT.

architecture, but we fail to take advantage of them. Let it at once be admitted, however, that the lack of grandeur which generally characterises work of this kind as carried out in this country is in no small measure due to the limited sites placed at the disposal of the architect by the council or other body in authority.

But it is monumental work of a peculiar character to which we now wish to draw attention.

The great Bismarck always was, and is, enshrined in the heart of Germany as a man of gigantic abilities, and it is only to be expected that the designs for monuments to commemorate him should aim at expressing that large character. Compare the three designs here given. They all have the same bigness about them, but the effect can hardly be called satisfactory. What shall we say of an architect who takes an hourglass as his model, makes a huge duplicate of one in cyclopean masonry, and sets around it four heads at least 50ft. high! Exactly how the structure is to hold up is not apparent, nor is it plain why there should be so many steps up to the beehive entrance. Suffice to say that an architect did it.

Then there is that terrific design by Bruno Schmitz, which seem to be a modern adapta-

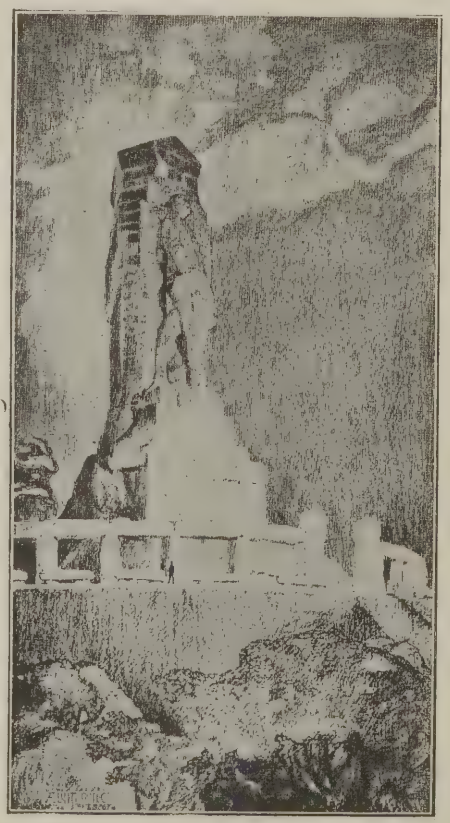


DETAIL OF ADMINISTRATION BUILDING AND KEEPERS' ENTRANCE, ZOOLOGICAL GARDENS, BERLIN. ZAAR AND VAHL, ARCHITECTS.

tion of Thebes and Stonehenge. Such a monument might survive another Glacial Age, and the learned societies of later days might then discuss it and marvel at the Newer Men who erected it. This immense structure is probably 250ft. high; "dark lowers the tempest overhead"; and yet there is not a lightning conductor—not the tip of one—to be seen.

Oh! Bismarck you may rest happy in your grave that you never saw either of these monuments; nor the third, which Emil Schaudt has designed to commemorate your mighty life. Yet this last (see p. 205) is quite reasonable, for, omitting the great figure, some of what remains is even praiseworthy, in its way. 'Tis a wild scheme though—massive certainly, but crude, barbaric and inspired with nothing better than novelty.

Some of our Continental friends seem very fond of this kind of thing: indeed, for the



DESIGN FOR BISMARCK MEMORIAL AT HAMBURG. BRUNO SCHMITZ, ARCHITECT.

moment, it is paramount; and if we assume that the younger generation of German architects is being fed on such stuff it is terrible to contemplate what the future has in store.

That mountain wonder which an architect has designed for Schloss Zinneberg, near Munich (see p. 208), possesses so many new features that the effect is truly remarkable. The stags appear to be very comfortable: the one looks down into the valley (not shown in the illustration, but assumed to be there), while the other gazes down with fixed wonderment on those—yes, it is just those which we cannot make anything of. They look more like great iced cakes than anything else; of course, they may simply be outlines of flowers in vases, but if so, how is anyone to water those on top of the columns? Altogether, it is a strange production, with a certain feeling of Roman work in the rough base, and a number of other mysterious features, not omitting the monogram above the entrance—surely it is a monogram—an



DETAIL ON A HOUSE AT BERLIN. OTTO RIETH, ARCHITECT. AUGUST VOGEL, SCULPTOR.

enigma, like Shakespeare sonnets, of "W. H." or "H. W."

Having considered a few monumental works, let us turn to the Wolzogen Theatre (see p. 209). It is far and away the most atrocious design we have yet seen, and, be it noted, the illustrations are from photographs of the work actually carried out, not from designs. It is a mixture of everything, and the result is calculated to drive everyone to distraction. The various horrors are glaringly apparent, and we will only observe that the carpet on the landing has the appearance of some dark fluid flowing down the stairs, carrying with it those floating white flecks.

In the preceding article attention was drawn to the practice of carving great heads on buildings, so popular just now with some German architects. Another atrocious example is given above. The audacity of the thing is astonishing. The head, it will be seen, is just about as long as those maidens who are tied to the columns at either side. Two web-footed children are emerging from the fair tresses, both evidently in some state of alarm, while the water-lilies and the casket above the great forehead are other matters for speculation.

That portal to one of the Darmstadt Exhibition buildings is equally outrageous in its gigantic figures, though we admit

there is a certain feeling of good decoration in parts, and the plain brick steps are satisfactory.

We must never be surprised at anything which these new architects do. They have thrown off the shackles of the past and now work unmolested by such trifles as proportion, fitness or sense. Their ingenuity now and then deserves some admiration and, on rare occasions, their fancies are pleasing enough. The pseudo-Chinese building illustrated on the opposite page has, however, none of those qualities, and we can only laugh at the monkey-men who are marked out in brickwork pattern on the chimneys: while, as for the piano design shown below, we can only be thankful that there are not many of such pianos about.

Lastly, there is the school illustrated on the next page. It is full of new features; and though the tendency to writhe is strong in certain details, the general effect is good and shows that the new architects can get quite enough freshness in treatment without abandoning every precedent adopted for generations before them.

But, looking at this new architecture in its entirety, what does it amount to? Nothing but novelty in most cases. Nothing but new forms without legitimate reason for them: nothing but a morbid straining after effect. Good construction, the basis of all architecture, seems hardly to be considered. Yet the style with all its gross faults sweeps over the whole Continent of Europe, and in Spain, France, Italy, Austria and Germany there are scores of these "new" designs produced. It is true that the work is isolated just now, but the separate workers have sufficiently similar aims to be called a definite school. It is questionable whether this new style is anything more than ephemeral: let us hope it is, for a style "founded on the contortions of a worm that has swallowed a bone" deserves to be throttled as soon as possible. As a writer has remarked: "Whether the 'Art Nouveau' will ever develop into anything really worthy of the name of art, or whether it will simply pass away like the other eccentricities which, in all the arts, have had their vogue for a few years, only to vanish into oblivion, remains to be seen; but it is safe to say that it will never make much progress until it abandons the attitude of ill-bred defiance of what may or may not be the prejudices of people of taste which has become more marked of late." We are quite aware that there are other designs of very different character produced by German architects, but it is impossible to ignore the new element which is so insinuating in its novelty and which, while setting up the alluring standard of freedom, utterly abandons all rules of common-sense.



CONCERT PIANO FOR A SCHOOL OF MUSIC.
BY A. VON C. BECHSTEIN.



ENTRANCE TO ONE OF THE DARMSTADT EXHIBITION BUILDINGS. J. M. OLBRICH, ARCHITECT.
STONE FIGURES BY L. HABICH. BRONZE FIGURES BY R. BOSSELT.

Correspondence.

American Cathedrals.

To the Editor of THE BUILDERS' JOURNAL.
NEW YORK.

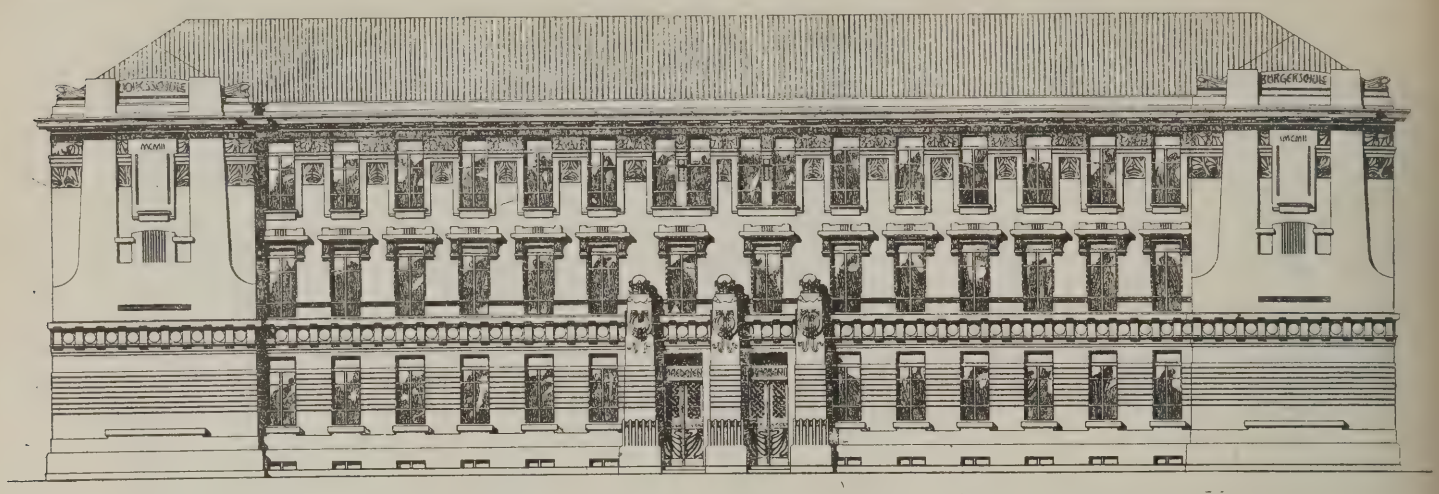
SIR,—The illustration of the Cathedral of All Saints at Albany, N.Y., in your issue for October 15th, is interesting, but, with the accompanying description, is slightly misleading. The engraving is from the architect's drawing, as the cathedral is very far from being finished at this time.

It is a fact, often commented upon, that all of the choicest sites for church buildings in America are secured by the Roman Catholics. The Episcopal Cathedral of All Saints is on a block bounded by very narrow streets, so that no unobstructed view of it can be obtained at a distance of more than 100ft.

The Roman Catholic Cathedral of the Immaculate Conception, which is one of the most notable buildings in Albany, aside from the State Capitol, stands on a commanding hill fronted by a triangular park. It is a Gothic structure of large size designed by Patrick C. Keely, finely proportioned and remarkable for its dignity. It is built of brownstone, and its two uniform spires can be seen for many miles. The stone is as dark in colour as Runcorn, so that the exterior is rather sombre, but the interior is of light-grey sandstone. The structure has stood only a little more than half a century, but it has not weathered particularly well. Sufficient care was not taken to set the stone on its natural bed, and consequently there has been considerable scaling and chipping. The Episcopal Cathedral is built of red sandstone, about the colour of Dumfries. This is a better weathering stone than most of the American brownstones.

Your paragraph says that the State Hall and the City Hall, which face the Capitol, are of white marble, and are the chief buildings of the city. The State Hall, built in the early part of the last century after a classical design, has no architectural pretensions in these days. It is of white dolomite, which never weathers well in the severe American climate. It is nearly as grey as granite and the exposed surfaces are all pitted. The City Hall is one of the most admired examples of the late H. H. Richardson's work, as far as the exterior is concerned. Unfortunately the interior has not been found well suited for municipal purposes. It is built of Milford pink granite in rock face with brown sandstone trimmings. At one corner is a tall campanile, and in this Mr. Richardson introduced a daring innovation. The lower part is of light pink granite, while the upper third, including the entire belfry and the peaked roof, is in a dark brown sandstone. The effect is very striking and satisfactory, although a pictured representation makes it appear top-heavy. This building was erected about a quarter of a century ago and replaced a white marble structure with a Greek portico, described in most of the gazetteers and shown in a fine French coloured lithograph much sought by collectors.

One of the few exceptions in America where Protestant church-builders have secured an ideal site is the Cathedral of St. John the Divine, New York City. This building is now in course of erection on Morningside Heights, a rocky elevation in the upper part of Manhattan Island. It overlooks the Hudson river, which is here a mile in width, and it is part of a monumental group of buildings. In the immediate vicinity are the handsome new buildings of Columbia University, St. Luke's Hospital, an immense structure of white marble, and the



DESIGN FOR AN ELEMENTARY SCHOOL AT KÖNIGSBERG, GERMANY. F. DIETZ V. WEIDENBERG ARCHITECT.

tomb of General Grant. Directly across the river are the precipitous cliffs of the famous Palisades.

St. John the Divine is interesting to architects and stone men as one of the few examples of a great cathedral being built by modern methods. The exterior is granite of a rich cream colour, much softer in tone and texture than any other American granite, and found only in one locality. This stone is obtained from an adjoining county, only 50 miles or so away. For stone for the interior finish the cathedral corporation has leased quarries nearly 1,000 miles away. A soft yellow stone for the carved interior finish is obtained at Frontenac, Minn., while a light red stone for polished work is quarried near East Sioux Falls, S.D. This is known in the trade as jasper, although it has only a faint resemblance to the stone that properly bears that name. In order to prepare the stone for the hands of the builders a large and fully-equipped steam mill has been installed directly in the cathedral. Despite the rapidity of modern American building construction, it is not expected that the cathedral will be completed for several generations.—Yours truly,

FRANK W. HOYT,
Publisher of "Stone."



DESIGN FOR MOUNTAIN RESERVOIR OVERFLOW NEAR THE SCHLOSS ZINNEBERG, BAVARIA. G. RANK, ARCHITECT.

GLASGOW TECHNICAL COLLEGE.

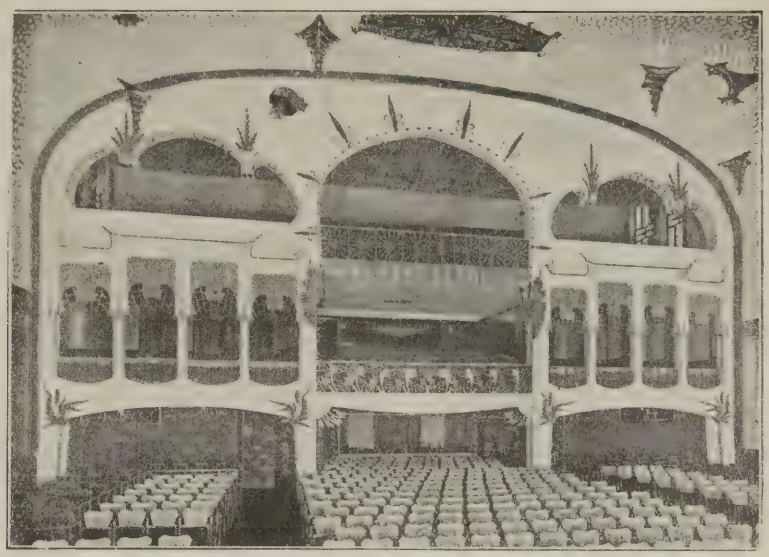
The New Teaching Regulations.

THE Glasgow and West of Scotland Technical College Architectural Craftsmens' Society, which is composed of old students of the Technical College Building Construction classes, held a meeting on Friday evening last, when an address was given by their old teacher, Professor Gourlay, on the New Teaching Regulations. He contrasted in an interesting manner the syllabus of work detailed by the Science and Art Department under the old régime with that to be followed under the Scotch Educational Department, and explained the proposed reduction and final abandonment of elementary classes in the College. The point which struck the Society most was that, whereas when they were students London technical terms and London methods only were taught, and the methods which they saw in use around them every day were quietly ignored, the students to-day are taught to appreciate Glasgow ways of working, and this change should destroy that want of sympathy which sometimes arose between practical tradesmen and technical college apprentices.

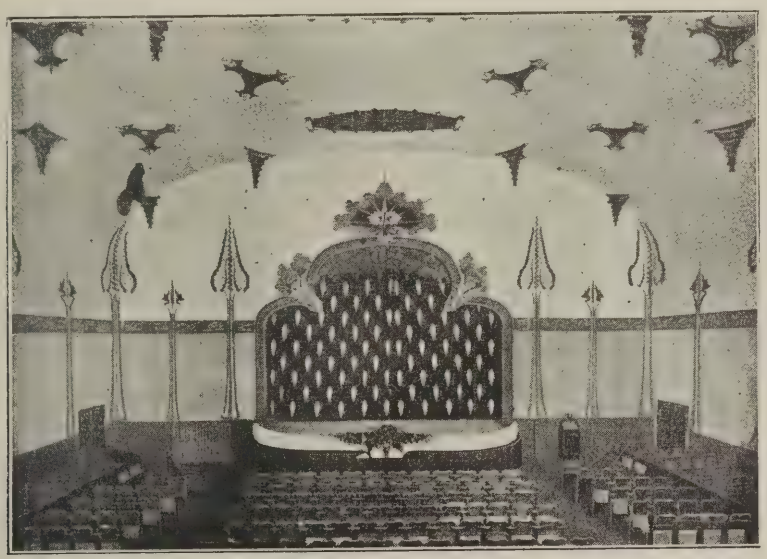
Law Cases.

Quantity Surveyors' Extras: Important Scotch Case.—In the Outer House Lord Kyllachy recently gave judgment in an action brought by Henry Herbertson & Co., measurers, of Glasgow, against the Lanark District Lunacy Board. His Lordship said the question was whether the plaintiffs were entitled to claim from the defendants a sum of £3,814 as remuneration for their services as measurers in connection with the erection of the defendants' new asylum at Hartwood. That asylum, with its offices and subsidiary buildings, was erected between 1889 and 1901, the work going on continuously during that time and involving various expansions and additions. The buildings comprised in the original contracts were estimated to cost £96,000. Their actual cost was £138,000. The additional buildings which were found necessary were executed at a cost of about £52,000 more. Thus the total cost was about £191,000, and it might be taken as common ground that it was with reference to the total cost of that amount that the plaintiffs' remuneration fell one way or another to be calculated. The plaintiffs had rendered an account framed on the principle of various *ad valorem* percentages, and bringing out in all no less than a sum of £3,814. The defendants, who had already paid £2,950 to account, maintained that this demand was extragavant, and also that it constituted an attempt to get behind an agreement by which plaintiffs' remuneration was regulated at the outset of their employment. His Lordship had heard throughout the proof a great deal about the table of fees of the Glasgow Institute of Measurers, to which the plaintiffs appealed as fixing in a question with employers the remuneration of all members of the Institute, except in so far as varied by special arrangement, and his Lordship was far from saying that it might not be shown that this table of fees, whether moderate or the reverse, had been so published and made matter of common knowledge that, unless expressly displaced, it entered by implication into every contract of employment between any measurer and any employer. He might say he should require a good deal more evidence and a good deal more argument than he had yet heard before he accepted such a conclusion. Still, it was a conclusion which his Lordship supposed might be established by evidence. Similarly he supposed it might be established that, whether binding or not on the principle of implied contract, such a table of fees was so fair and reasonable in itself that it formed at least a standard by which the Court might properly be guided in fixing a *quantum meruit*. Here, again, he should be sceptical. He did not, however, in this case require to consider any question of that sort, for not only had there been no sufficient evidence of the kind requisite but there had here beyond doubt been a special contract between these parties—a contract which, in his Lordship's opinion, displaced not only the table of fees, but any question of *quantum meruit*. The contract in question was contained in a minute of the defendant Board, the terms of which were intimated to the plaintiffs by letter and by them accepted in March, 1899, by which the remuneration to be paid was fixed at 1½ per cent. for measuring all plans, buildings, &c. The question was whether there was any reason for departing from the scale of remuneration there expressed, with respect either to the extra work which brought up the cost of the buildings originally contemplated and shown in the original plans from £96,000 to £138,000; or, secondly, to the additional buildings and other works which brought up the total cost to £191,000; or, thirdly, to certain minor and incidental services which, although relative to the work, and beyond all doubt of the nature of measurements, were yet, according to the plaintiffs, to be paid for as extras. On that matter

he was of opinion with the defendants upon the following grounds:—In the first place, his Lordship was satisfied that the contract covered not only the additions and alterations upon the buildings shown in the original plans, but all the buildings and works which were from time to time added as part of the asylum establishment. He was satisfied upon the evidence that the added buildings and works were all *ejusdem generis* with the original buildings and works. In short, he was satisfied that all the buildings were such as might have been contemplated from the outset as not unlikely to come within the scope of the plaintiffs' employment. In the second place, even assuming that the plaintiffs, when they found that there was extra work falling within the original contracts or additional work executed under additional contracts, might have refused to proceed except upon a new and different arrangement. He considered it sufficient that they do not in fact do so, but continued to work under the original employment, making no claim to larger or different remuneration, and giving no notice to the defendants that they proposed to do so. Lastly, with respect to the incidental measurements, the evidence,



WOLZOGEN THEATRE BERLIN. AUGUST ENDELL, ARCHITECT.



WOLZOGEN THEATRE BERLIN. AUGUST ENDELL, ARCHITECT.

he thought, established that with two possible exceptions there was no statable ground for holding them as outside the ordinary work of measurers, and as such covered by the stipulated percentage. The two exceptions were, first, the measurements given by the plaintiffs in February, 1889, in connection with the estimate of the probable cost required by the General Board of Lunacy, for which his Lordship had not seen his way to allow them anything; and, secondly, certain measusements made in the course of the work for the purposes of an arbitration with certain contractors, for which he thought they might be allowed £90 in place of the £133 claimed. The result was that the plaintiffs' remuneration would be 1½ per cent. on £191,316, plus £90 for the arbitration measurements, making in all a sum a few pounds in excess of the sum already paid them and a good deal smaller than the sum which appeared to have been offered them at the outset of these proceedings. They would now obtain decree for the small sum which was still due to them on the exact figures being ascertained. With regard to expenses, his Lordship saw no reason whatever why they should not be subjected in the full expenses of this litigation, a litigation for which, it appeared to his Lordship, they were entirely to blame.

Cottage Sanitation: A Manchester Case.—The case of *Agnew* v. *The Manchester Corporation* was recently heard in a divisional court of the King's Bench. The plaintiff appealed against an order of the Recorder of Manchester, which compelled him to replace certain privies at Crumpsall with water-closets. In giving judgment, the Lord Chief Justice said he was of opinion that the Manchester Corporation Act, 1875, should be construed as giving power to the Corporation to make such an order. With regard to the matter of consideration, it was clear that the first plans presented to the sub-committee were merely of the property as it stood, and it was not until after the consideration of these plans that further plans were prepared showing the improvements recommended by the superintendent which were made the subject of this order. Dealing with the powers of the sub-committee, his Lordship thought that the decision of the sub-committee formed a recommendation to the Council, and, when ratified by the Council, became the act of the Corporation. Appeal dismissed.

Stonemasons' Apprentices: Damages Against a Trade Union.—In the Court of Appeal last week judgment was given in the case of *Read* v. *Friendly Society of Operative Stonemasons and Others*. The Master of the Rolls said the appeal was by the defendants from a decision of the majority of the Divisional Court ordering a new trial in the action which was decided in the Ipswich County Court in favour of the defendants. There was a cross-appeal by the plaintiff asking that judgment should be entered for him, with the sum of £50 as damages. The judges in the court below were agreed that the decision was unsatisfactory, Justices Darling and Channell holding that there ought to be a new trial, while the Lord Chief Justice thought that there was sufficient evidence for the court to enter judgment for the plaintiff. The facts might be stated thus:—Messrs. Wigg & Wright, who were stonemasons, belonged to the defendant union, of which all the masons in their employ were also members. The plaintiff, who was the son of a mason, was employed by Messrs. Wigg & Wright as a labourer and was twenty-five years of age. By rule 6 boys entering the trade must be bound



WOLZOGEN THEATRE, BERLIN.



SKETCH DESIGN FOR THE PROPOSED BRIDGE ACROSS THE STRAND, BY SIR JOHN WOLFE-BARRY.

apprentice, and in no case were apprentices to be more than sixteen years of age, except masons' sons and step-sons. Messrs. Wigg & Wright considered that the limit of age did not apply to the plaintiff and they agreed to apprentice him and teach him the trade. He was not a member of the union. After his articles were signed the union wrote to Messrs. Wiggs & Wright to the effect that in their opinion the plaintiff ought not to have been taken as an apprentice, and threatening to withdraw the men if the articles were not broken. Messrs. Wigg & Wright therefore did nothing and the plaintiff brought his action, complaining that by the conduct of the defendant union he had been prevented from learning the trade of a mason, whereby he might have earned at that trade 35s. a week instead of 15s. a week, his present pay as a labourer. If the plaintiff had not been a mason's son the plea of justification raised, namely, that the union had taken up the case honestly, believing that in doing so it was doing that which was best for the trade, might not only have been a good defence to its interference but might also have covered the course it adopted to enforce what it considered to be the true interpretation of the rule. But in his opinion the interpretation which defendants placed on rule 6 was wrong, as it did not limit the age of apprentices in the case of masons' sons. The plaintiff was not bound by any of the union's rules, and he had suffered a loss, and could maintain the action. The evidence was sufficient for them to enter judgment for the plaintiff for £50, and thus save the parties the expense of a new trial. Accordingly this appeal would be dismissed, and the cross-appeal by the plaintiff allowed with costs. The Lords Justices concurred.

Wages in the Building Trade.—The case of *Bulcock* v. *The St. Anne's Master-Builders' Federation* came before the King's Bench Division of the High Court of Justice last week. This was plaintiff's appeal from Judge Coventry, sitting in the Blackpool County Court. The action was brought by Thomas Bulcock, a joiner, to recover damages from the defendant Federation for having been, through their action, wrongfully dismissed from his employment. It appeared that Bulcock, who had formerly worked at Bury, went to St. Anne's and obtained work in the first instance with Messrs. Moore, and afterwards with Messrs. Hopwood & Sutcliffe, builders. The rate of pay in St. Anne's was 8½d. an hour, but the employers gave notice to reduce the amount to 8d., acting through the defendant Federation. The men declined to accept the reduction, and then there took place what the masters called a strike, but the men a lock-out, because the first aggressive step was taken by the masters. Afterwards the plaintiff obtained work with Messrs. Thompson & Brierley, builders, of Lytham, at the rate of 8½d. an hour, and continued in that employment from July to September, 1901. The plaintiff's case was that the defendants, acting through their county association, by means of a resolution, letters, and threatened enforcement of rules, brought pressure to bear upon Messrs. Thompson & Brierley, with the result that they caused that firm to pay him up and discharge him. This, he said, was an actionable wrong, for which he could recover damages. The Lord Chief Justice said he had come to the conclusion that the county-court judge was right in holding that there was no evidence in this case of any actionable wrong upon which he ought to give judgment for the plaintiff. Counsel for the appellant had said that, apart from any allegation that the employer was induced to break a contract, he was entitled to say that if the end aimed at was unlawful, and the means aimed at were unlawful, then, if defendants' act caused damage to the plaintiff, he could recover. He did not dispute that as a general proposition; but in order to establish it plaintiff must give evidence which came within the rules laid down by the House of Lords. The evidence in this case fell far short of anything that had been held sufficient for a ground of action. It must be remembered that there was no breach of contract by the employers, and that what they had done was with a view of protecting their own interests, and not for the purpose of injuring plaintiff or others. The other judges concurred, and the appeal was dismissed, with costs.

Important Building Trade Appeal.—In the Court of Appeal last week the defendants in the case of *Ben Graham* v. *the Commissioners of His Majesty's Works* applied for judgment or a new trial of the action which was tried before the Lord Chief Justice and a special jury at Leeds on August 6th, 1901. At the trial judgment was entered for the plaintiffs for over £2,000 and costs. The Solicitor-General, in opening the case, said the action was brought by the plaintiffs, a firm of builders trading as B. Graham & Sons, at Huddersfield, to recover damages from the defendants, upon the grounds that the defendants had wrongfully determined a certain building contract for the erection of the new head post-office at Stalybridge, and had wrongfully taken possession of certain unfinished work, materials and plant. The learned counsel said that, stated shortly, the question was whether the defendants' architect, who had certain powers under the contract, had adjudicated on certain defaults of the builders, which adjudication was a condition precedent to the defendants having power to determine the contract and to enter into possession of the works themselves. The Lord Chief Justice had held that there was no evidence of adjudication by the architect at all, and that therefore the Commissioners had no right to terminate the contract. Under clause 24 of the contract the Commissioners had power, on the written certificate of the architect of the fact of any default of the builders and failure to comply with a seven days' notice, to determine the contract, all moneys due to the builders and all goods and chattels on or about the works being thereby forfeited to the Commissioners. Mr. Oldring, the architect, wrote to the builders insisting that they should remove from the works some timber of inferior quality specified by the clerk of the works. The builders did not comply with this notice, and the architect who was acting in the place of Mr. Oldring (who was ill) gave them further notice that if the timber was not removed at once the Commissioners would act in accordance with the terms of clause 24. No notice was taken of this, and the Commissioners subsequently determined the contract. The learned counsel submitted that there was no need for the architect himself to inspect the joists in the roof, that he was perfectly within his right in delegating this duty to the clerk of works, and that he had therefore adjudicated on the matter in accordance with the terms of the contract. Mr. Tindal Atkinson followed on the same side, and the hearing was adjourned.

New Flats at Paddington: Ancient Lights Case.—On Saturday last, in the Chancery Division of the High Court of Justice, judgment was delivered in the case of *Boyce* v. *Paddington Borough Council and the Vicar of Paddington*. The plaintiff has recently erected a large block of flats abutting upon the disused burial-ground of St. Mary's, Paddington. The defendants contended that they had a right to put up a hoarding in front of the windows of the flats so as to prevent the plaintiff from obtaining a prescriptive right to the access of light to his windows. Mr. Justice Buckley, in delivering judgment, said that the plaintiff's contentions were (1) that as a member of the public, he was entitled to insist that the space should be kept open, which would result in his getting a free access of light, and (2) that in any case the defendants were forbidden by statute to erect any building except a church extension, and that a hoarding was a building. There was no public right to the access of light to windows, but only a public right to have the burial-ground kept open for the enjoyment of the public for exercise and recreation. The space was not to be kept open so as to create rights in favour of adjoining landowners. A hoarding erected to prevent a right to access of light being obtained was not a building within the Acts. The plaintiff's action failed, and must be dismissed, with costs.

THE STRAND BRIDGE.

THE proposed bridge across the Strand, a diagram sketch of which is given on this page, was considered at last Thursday's meeting of the Westminster City Council.

Sir John Wolfe-Barry, in his report, proposed the making of a street adjoining Wellington Street on its western side, starting from Tavistock Street, which would rise from that point at a gradient of about 1 in 30; to construct a bridge across the Strand, with a headway of about 16ft. 6in.; and to continue the roadway on the line of Lancaster Place, which should fall at a gradient of about 1 in 20 to 1 in 30, and join Waterloo Bridge at its northern end. Under Sir John's scheme Wellington Street would remain as at present with a width of 50ft., and the new street would also have a width of 50ft., the two streets running side by side at different levels. The scheme would permit of the building of shops along a considerable portion of the west side of Wellington Street below the new street, and also along the raised road there would be a frontage of commercial value which would be of great importance in connection with the expense of the project. Sir John stated that the London County Council is more or less pledged to widen the Strand to 80ft., and that a proposal has been made to widen Wellington Street on its eastern side. The scheme was referred to two committees for consideration and report.

LANGHO COLONY COMPETITION.

WE understand that thirty-eight sets of designs were submitted in the important competition for a Colony for Epileptics, Imbeciles and Idiots proposed to be erected at Langho, near Blackburn. Thirty-three of the designs were publicly exhibited at the Chorlton Town Hall, Manchester, from the 27th to the 29th of October, five of the competitors having expressed a wish that their schemes should not be included in the exhibition.

The project involves a very considerable expenditure, and is the outcome of several years of study and preparation on the part of the promoters, the Chorlton and Manchester Joint Asylums Committee. The object is to relieve the workhouses in their respective districts of those paupers who are not eligible for admission to the county asylums and who belong to classes for which no adequate provision is made in the ordinary workhouse ward. A Bill, promoted, we believe, by the Local Government Board, which would compel all Unions to provide suitable and separate accommodation for epileptics and the feeble-minded, is, we understand, in contemplation. Manchester is therefore to be congratulated in voluntarily taking the initiative in the matter.

A site of about 165 acres has been secured at Langho, and upon this, as a first instalment, it is proposed to build for 370 idiots, 100 adult insane epileptics, 30 insane epileptic children, 150 sane epileptic adults and 50 sane epileptic children, a total of 700 exclusive of sick and probationers. The buildings are to be grouped into villages designed upon the "colony" system, the patients being housed in homes containing from twenty-five to fifty or sixty inmates. In the United States and Germany there is a considerable number of rate-supported colonies for epileptics, but, so far as we are aware, this is the first of its kind to attempt to include idiots and imbeciles with the epileptic in one institution. We think this an undesirable departure for many reasons, such as the added difficulties and complications of management, and the possibility that sane epileptics may refuse to enter or parents allow their children to become inmates in an institution which carries the stigma of a lunatic asylum. It may be urged that such objections would only be the result of ignorant prejudice on the part of the pauper, but we venture to think that the daily meeting of these classes in the chapel and recreation hall and in their walks and work would go far to depress and retard the cure of the sane. It is therefore evident that one of the main objects of the scheme should be to keep the sane patients as isolated from the insane as possible.

Another special feature of the requirements is the unusually small number of attendants proposed—according to the conditions only fifty-four for the 700 patients, and of these fifty-four only ten of them to be male attendants. It appears evident, therefore, that the nursing of the male idiots and imbeciles is intended to be undertaken by women, which leaves ten men to take charge day and night of fifty sane and seventy-five insane epileptics. We fear this fact has been overlooked by a good many of the competitors in the disposition of their villages.

The conditions state that none of the attendants are to sleep in the patients' homes, except the foster-mothers who care for the sane children, and further require that each home must contain, besides the two or three sleeping-rooms for patients, a suitable place for an attendant from which all the sleeping-rooms can be readily overlooked. A diversity of opinion is noticeable among competitors as to the intention of this clause, the majority, including the three premiated designs, taking it to mean that a small room should be provided with inspection windows somewhat in the nature of a duty-room in a hospital. On the other hand, some of the designs, noticeably No. 35, take the "suitable place" to mean a convenient position actually inside the dormitory, arguing that as no attendants are to sleep in the homes, those on night duty should be constantly with their patients, and there appears to be a good deal to say for this contention.

The first premiated design (No. 38), by Messrs. Giles, Gough & Trollope, of London, is illustrated with a clear and masterly set of drawings. Their block plan shows an interesting and picturesque lay-out of the various buildings, the patients' homes being divided into eight groups or villages, all arranged around roads of approximately circular or elliptical formation.

The men's villages are on the north-east side of site, whilst those for women and children are on the south-west, the power-house, workshops, administrative buildings, hospital and receiving wards being in the centre.

The sane patients' villages are close to and on either side of the workshops group, with the large male and female idiots' villages on either side beyond. The sane children are placed in the extreme south, while the insane children are near the western boundary, with the insane female epileptics' village adjoining. The insane male epileptics' village is close to the eastern boundary and near the village for male idiots. Bearing in mind our former remarks, it will be noticed that the disposition of the patients is open to the objection that the male idiots' village is placed between the groups set apart for insane and sane epileptics respectively; while both villages for the latter class appear to be too much hemmed in by other villages and the workshop and laundry buildings. Moreover, the approach to the sane children's village passes through the female idiots' group, and their homes are the most distant from the entrance.

Nor do we understand the subdivision of the sane patients into four homes accommodating thirty-seven each, and the insane into four homes of twenty-five each; it seems to us that the arrangement should have been reversed and the sane epileptics housed in the smallest and most homelike cottages possible, grouping the insane together in larger homes for the sake of easier supervision and to ensure that there might always be a sufficient number of attendants in each block to cope with any emergency. The rules of the Lunacy Commissioners insist on three attendants being always present in each insane block as a minimum, and we do not think they would allow the erection of homes for so small a number as twenty-five in each.

The planning of the individual homes and buildings we consider on the whole well thought out, showing a thorough knowledge of institutional requirements, though we took exception to the top-lighted lobby on the first floor of the idiots' block; nor can we imagine the central hall with gallery around, which is shown on the first-floor plan of the sane epileptics' homes, would prove a wise arrangement for persons subjects to fits; and we are surprised that the assessor (Mr. Gordon Smith) did not take exception to the almost complete absence of cross-ventilation in all the sleeping rooms of this particular block. The elevations showed that the buildings are intended to be treated in a picturesque manner, half-timber work and rough-cast being freely used to give variety. The authors estimate the cost of their scheme at £187,316.

The second premiated design (No. 34), by Mr. E. P. Howard and Mr. E. R. Dolby, of London, appears to us also to be open to objection as far as the general lay-out is concerned, the idiots' villages being divided into three widely-separated groups, for male, female and bedridden patients respectively. The insane men's village is surely too close to that of the sane men, and it would be necessary to pass through the insane children's village to reach the sane children's establishment, which is again at the rear of the site. The homes are long blocks designed on the usual hospital pavilion principle, and can hardly be termed homely domestic buildings. The sane children's village in this design is arranged around a covered way of quadrangular form, with the four homes projecting at an angle of 45 degs. from each corner, the school being in the centre of one side of the square and a dining hall placed opposite to it on the other. A striking and clever plan, but perhaps rather too institutional in character.

The authors of the third premiated design (No. 16), Mr. J. Smith, Mr F. J. Parkinson and Mr. W. Stirrup, of Blackburn, have adopted a square lay-out for their roads and villages. The plan of some of their homes takes the form of the letter Y, the dormitories being placed in the wings and the smaller rooms in the centre, thus obtaining perfect cross-ventilation to the projections, but at the sacrifice of the shape of the central rooms and the homelike character of the buildings.

We can only very briefly refer to the remaining designs, of which No. 7 (with no name attached) was perhaps one of the most artistic and best drawn. In this scheme the whole of the male and female idiots are located in a large village on the southern part of the site, the hospital and receiving wards at the extreme east, with the administrative buildings in the centre. The villages for the insane men and women we thought looked too close together. The plans of the homes were carefully considered, but a recreation hall in each block is an unusual luxury for pauper inmates and appears an unnecessary extravagance.

No. 35, by Messrs. Greenaway & Newberry, of Westminster, had a good symmetrical lay-out and what seemed a well-considered scheme. Here the feeble-minded of both sexes are grouped in one great village behind the central administrative and kitchen buildings, the homes for the bedridden imbeciles forming the dividing line between the sexes. The homes for the insane children are also included in this village, thus allowing all these classes of both sexes to be under the charge of female attendants. The sane children's village, with its playing fields and school, is shown near the road, and the sane men and women's villages are also in the front part of site and well isolated from the insane and feeble-minded. The homes themselves appeared to be carefully planned, with cross-ventilated dormitories, an absence of passages, and properly disconnected sanitary adjuncts, but the elevations were not sufficiently picturesque, and the provision of a water-tower instead of storage-tanks on the highest part of the site appears unnecessary.

No. 13, by Mr. J. Eltringham, of Sunderland, made the original suggestion of forming a lake in the centre of the site! A bandstand and promenade were also shown on the block plan, and the "amusements' hall" was provided with an extensive basement containing a skittle-alley and gymnasium.

No. 8, by Messrs. Wills & Anderson, of London, was illustrated by a somewhat inferior set of drawings, and did not seem worthy of this usually enterprising firm's reputation.

We noticed other striking designs which contained many good points, among which were No. 32, by Mr. H. Dighton Pearson; No. 12, by Messrs. Treadwell, Martin & Tavler; and No. 17, by Mr. W. E. Hazell. No. 20, by Messrs. Sharp & Foster, of Manchester, and No. 11, by Mr. H. E. Stelfox, also of

Manchester, appeared to be modelled on German lines.

At the last meeting of the Manchester Board of Guardians the following resolution (approved by the Chorlton Board of Guardians four weeks ago by 13 votes to 1) was moved:—

"That whereas the Chorlton and Manchester Joint Asylums Committee is empowered by order of the Local Government Board to erect and maintain an asylum for imbecile paupers and persons who may be insane or suffering from epilepsy, this Board is opinion that in consequence of the expected great cost of such asylum, the heavy burden of the present rates in this township, and the fact that suitable provision is already made for the insane and imbecile, the Joint Committee should for the present content itself with a moderate scheme for dealing with the pauper sane epileptics of the two Unions; and respectfully requests that the Joint Committee will take this resolution into its careful consideration."

Some discussion followed, but the resolution was defeated by 11 votes to 3.

Builders' Notes.

Mr. F. M. Vick, senior, builder, of Chichester, died recently at the age of sixty-seven years.

Fireproof Floors.—Messrs. Homan & Rodgers, of Manchester, have secured contracts for the concrete fireproof floors and constructional steelwork to the Haxby Road and Poppleton Road Schools for the City of York School Board, and also for the New Nurses' Home, County Hospital, York.

The International Fire Exhibition.—The Duke of Cambridge has consented to be the President of the Hon. Advisory Council of the impending International Fire Exhibition which is being organised at Earl's Court under the auspices of the British Fire Prevention Committee.

Mr. Andrew Smith, retired builder, of Dundee, died recently at the age of eighty years. Deceased was a native of Invergowrie, and served his apprenticeship as a builder in Dundee. From Dundee Mr. Smith removed to Arbroath, and commenced business on his own account. While in Arbroath he undertook some big works, including the building of the harbour breakwater and Rossie Reformatory. At Dundee he constructed the "Queen's Hotel," the bonded warehouses in Seagate and the extensive harbour warehouse in East Dock Street.

The Supply of Timber.—In his presidential address to the Institution of Civil Engineers Mr. John Clarke Hawkshaw, M.A., dealt with the world's supply of timber. Important uses of timber in large quantities were for pit-props and for sleepers. The substitution of metal for timber sleepers progressed but slowly, and as the maximum life of timber sleepers in England was twenty-four years, the quantity of the material needed annually for renewal of sleepers alone constituted a serious drain on the timber supplies of the world. The only country which could be looked to for timber was Canada, and even on its resources the wood pulp industry was a considerable tax. In other countries measures had been taken to secure the control of forests and their management on scientific principles, and he hoped the labours of the Committee recently appointed by the Board of Agriculture, and at present sitting, would result in removing from Great Britain the reproach of being the most backward country in respect to forestry. Turning to means of cheap transport, and the services likely to be rendered in the future by steam-driven vehicles on roads, the president suggested that the time was coming when the main roads should be placed under one management throughout the country, and become a national charge instead of a charge on the local rates. Good roads, with organised steam traction, would be more useful to farming than would light railways. The president then presented the medals and prizes awarded by the Council for the last session.

The Registration of Plumbers.—Mr. Long, M.P., received at the Local Government Board last week a deputation of local authorities and public health and water authorities, who desired the assistance of the Government in passing the Registration of Plumbers' Bill, which has passed the Lords and is now before the Commons. Mr. Long said that the Local Government Board regarded the measure with hearty approval and good will. He might say that the Bill would not put the plumbing industry on a par with the medical profession, where they had the power not merely of insisting that they should have a qualified man but of prosecuting those who only professed to be qualified. The Bill only provided that a man should be punished who claimed to be a certificated plumber and was not. The practical question was how to get the Bill through Parliament. He was sorry to say that the present position of non-controversial subjects in the House of Commons was most unfortunate and serious to the country. He therefore desired that the members of Parliament present, and all those interested in the Bill, should do all that was necessary to forward the measure, for it was impossible for the Government to take it up in the present state of business.

London County Council: Amendment of the Building Act.—At last week's meeting of the Council the Joint Committee appointed to consider the advisability of promoting in the next session of Parliament a Bill on the subject of underground railways in London made its report. They had come to the conclusion that the most effective method open to the Council was to invite the assistance of the Government. They recommended that the Government be urged to hold a full enquiry into the question, and that with a view of obtaining such enquiry a deputation should wait on the President of the Board of Trade. After discussion the report was adopted, and it was referred to the Joint Committee to arrange for the proposed deputation.—The Building Act Committee brought up their report recommending that a Bill should be introduced into Parliament in the session of 1903 to amend the provisions of the London Building Act, 1894, relating to safety from fire—this as a practical result of the fatal fire in Queen Victoria Street last June. Correspondence took place between the Home Secretary and the Council on the subject, and the former stated that he would have no objection to the extension to existing buildings of the clauses of the London Building Act with respect to means of escape from fire under proper conditions and in suitable cases, provided adequate provision were made for allowing the owners or occupiers of existing buildings an appeal to an arbitrator or some other tribunal. Briefly stated, the object of the Building Act Committee is to secure a reduction in the height above which the provision of special means of escape can be required in the case of new buildings (not being factories or workshops coming within the provisions of section 14 of the Factory and Workshop Act, 1901, or common lodging-houses coming within the Common Lodging-houses Acts), and, after a certain date, the application of similar provisions to existing buildings; the provision of means of escape from new and, after a certain date, existing buildings (not being factories or workshops coming within the provisions of section 14 of the Factory and Workshop Act, 1901, or common lodging-houses coming within the Common Lodging-houses Acts), in which a considerable number of persons are employed, or in which sleeping accommodation is provided for a considerable number; additional powers in regard to premises used in part for the purposes of trade or manufacture and in part as dwelling-houses, especially where the part used for trade projects beyond the front of the building (as, *e.g.*, in a one-storey shop); powers to regulate the use of match-boarding and panelling as an internal finishing to walls, &c.; and the enclosing of lifts in buildings.

No. 182, FLEET STREET, LONDON.

THIS is the subject of our new competition, full particulars of which were given in the issue for October 22nd.

The front of the building—which is a stuccoed example of the last century—is required to be redesigned in brick. It is to be a logical outcome of the conditions, and must embody all the requirements of those who use the building.

Prizes of £5 5s., £3 3s. and £2 2s.

are offered, and designs are to be sent in between November 25th and December 1st, addressed to the Editor of THE BUILDERS' JOURNAL, Effingham House, Arundel Street, Strand, W.C.

Engineering Notes.

The Transporter Bridge at Newport, Mon., is now in course of erection. The foundation-stone of the western anchorage was laid last Saturday.

"Johnson Hall," Eccleshall, has recently been fitted with the latest improved hot-water heating apparatus by Messrs. John King, Ltd., engineers, Liverpool, who have employed their "Rahnee" radiators and "Rex" radiator valves.

The Additions to the Joint Infectious Hospital, Burnley, are being warmed and ventilated by means of Shorland's double-fronted patent Manchester stoves with descending smoke flues and patent Manchester grates, those previously supplied having proved very satisfactory.

Sonning Bridges.—The question of the rebuilding of Sonning bridges was discussed at a meeting of the Oxfordshire County Council last week. The committee reported that they had decided to adhere to the plans for an iron bridge. An alternative design was submitted providing for the substitution of brick piers in place of iron supports It was unanimously resolved that the rebuilding of the bridges be referred back to the committee, with power to adopt either of the two schemes at an expenditure not to exceed £9,000.

Messrs. E. F. Blakeley & Co., of Vauxhall Ironworks, Liverpool, are supplying the steelwork for the new Navy League Building at Liscard, near Liverpool, the foundation stone of which was laid recently by Lord Strathcona, High Commissioner of Canada. They have also recently erected five large rooms about 200ft. long at Bebington for the Birkenhead and Wirral Agricultural Society; large footbridge at Litherland for the urban district council; and during the last ten years about 5,000 tons of steelwork for Messrs. Lever Brothers, Sunlight Soap Works.

Views and Reviews.

Old St. Paul's.

Wenceslaus Hollar was an Austrian engraver of the seventeenth century who was brought to England by the Earl of Arundel. He soon obtained profitable employment, and afterwards became drawing-master to the Prince of Wales (Charles the Second). When the Civil War broke out he served in the Royalist ranks and was taken prisoner at Basing House, but he managed to escape to Antwerp. There, however, he found little to do, so in 1652 he returned to England, and was engaged upon the plates for Dugdale's "History of St. Paul's," for which he is said to have been paid about fourpence an hour "at his usual method by the hour-glass." It is to this man that we are so much indebted for our knowledge of Old St. Paul's. Reproductions of his engravings showing the great building from various aspects, its mighty nave and choir, its chapter-house, chapels and monuments, give to this book most of its interest, for, though not accurate in every particular, these engravings show us what the cathedral was like; and without them no words, however eloquent or descriptive, could ever bring Old St. Paul's before our eyes.

The Romans probably built a temple on the site. Then arose the Anglo-Saxon church which was destroyed by fire in 1087, and afterwards the Norman building which formed the nucleus of the great cathedral that lasted for nearly six centuries. The later builders, Early English and Transitional, added to it in their fashion, but it is interesting to note, in looking at Hollar's engravings, that the Norman was not replaced by the Gothic, for the old pillars were really encased by the new. Old St. Paul's was complete before the end of the thirteenth century; in the fourteenth, a marble pavement costing 5d. a foot was laid down, and a new spire erected with a cross and gilt pommel on it large enough to contain ten bushels of corn. Time went on and the cathedral fell into a state of disrepair until, at last, the work of restoration was undertaken under Inigo Jones, who, among other things, designed a great Corinthian portico at the western end. Then came the Plague and the Great Fire—so finely described by Mr. Ainsworth—and the whole fabric was brought to ruin.

There is considerable interest in comparing the dimensions of the old and the new. Stow says the height from the ground to the top of the spire of Old St. Paul's was 520ft.; Wren thought that too great and reckoned it at 460ft.; but even this is nearly 60ft. higher than the existing building. The old cathedral was 586ft. long (not including Inigo Jones's porch), the present one is 500ft.; the height of the old nave was 93ft. and the choir 101ft.

Into the many other points it is not possible to go now, but everyone who has an interest in Old St. Paul's—and all architects must have such an interest—will be glad to read more about it and to look again at those invaluable engravings by Hollar.

"Old St. Paul's Cathedral," by Canon Benham, D.D., F.S.A. London: Seeley & Co., Ltd., Great Russell Street, W.C. Price 7s. nett.



THE NAVE OF OLD ST. PAUL'S OR PAUL'S WALK. *(After W. Hollar.)*

Fire Tests.

We anticipated two volumes very different from what these are. We thought Mr. Sachs's "Facts on Fire Prevention" would have given us the comparative merits of various constructions; his long connection with fire prevention warrants such an assumption; but, instead, these volumes are merely reprints of the British Fire Prevention Committee's publications. The tests themselves are, of course, of very great value, and we should have expected that, as they are dealt with separately in the Committee's excellent reports, a comparative study of the results would now have been given. It is true that the various classes of tests are kept together in these volumes—Vol 1 dealing with floors, ceilings, partitions and materials: and Vol. 2 with doors, glazing and curtains—but that is not enough. It is quite a study to find out how one door stood the test of fire as compared with another, or the floors and ceilings with one another. In view of the fact that the publications of the British Fire Prevention Committee have already been collected together in volumes, we must express disappointment at these reprints; and we should have thought the purpose better served by a small book tabulating the facts and setting them forth in a manner that would show at a glance what are the fire-resisting qualities of different constructions. We say this despite Mr. Sachs's preface, in which he expressly states that "no attempt has been made to comment upon or recommend any individual material or method, it being left entirely to those interested in building to judge for themselves to what extent such materials accord with their individual requirements. Hence, the book is one fully embodying its title . . . and is not critical or discursive." The facts are certainly of the greatest value, and every architect and builder should know them, but we cannot see that they would have been any less "facts" if dealt with as we have suggested—or if even some summary of them had been incorporated in the volumes—and we are not able to agree that "the absence of all comment or criticism is, in itself, an advantage." The volumes themselves are very well produced, the numerous illustrations being excellent.

"Facts on Fire Prevention," Vols. 1 and 2, edited by Edwin O. Sachs. London: B. T. Batsford, 94, High Holborn, W.C. Price 25s. nett. (the two).

Enquiries Answered.

The services of a large staff of experts are at the disposal of readers who require information on architectural, constructional or legal matters. Questions should in all cases be addressed to the Editor. The querist's name and address must always be given, not necessarily for publication.

Fireproof Floors.

OLDHAM.—QWERTYNIOP writes: "In looking for a cheap but effective fireproof floor suitable for artizans' dwellings and other buildings where the rooms are of small area, my attention has been drawn to Mr. Louis Ambler's description in his paper read before the A.A. and reported in the BUILDERS' JOURNAL for May 14th, 1902. I should like to know (1) how the ½in. square iron bars are secured at the walls; and (2) whether the 9in. by 6in. wood beams are practically unprotected underneath."

(1) The ends may be let further into the wall. They do not carry the concrete, but merely strengthen it. (2.) Yes.

LOUIS AMBLER.

Substituted Scales: English and French.

LONDON, W.—QUARRELSOME writes: "A has a drawing made to a scale of $\frac{1}{16}$in. to the foot. A, who has, say, only one French scale in his possession, namely a metre scale quarter full-size, claims that he can apply that scale to the drawing and, by multiplying the metrical reading so obtained by 48, obtain the true dimension in metres. B does not agree with this. Who is correct?"

Surely if A and B have the scale they can try it on the drawing and prove by ocular demonstration who is right. A metre contains 39·370432in., so that a decimetre is practically 4in. long in round numbers, and at quarter full-size, 1 d/m = 1in. or 10 c/m = 1in. Approximately 5 metres = 16ft., so that a scale of 16ft. to 1in. will be = 5 metres to 1in. Now 10 c/m = 0·1 metre and $\frac{5}{0{\cdot}1}$ = 50 multiplier. But it may be worked out in a shorter way and more accurately, thus:—

Inches to 1in. = $\frac{16 \times 12}{4}$ = 48 multiplier.
Metres to 1m.

HENRY ADAMS.

Dry Rot in Furniture.

BIRMINGHAM.—SUBSCRIBER writes: "I have just bought a beautifully veneered and inlaid bureau and have been puzzled by finding a number of minute holes in the surface, exactly circular and $\frac{1}{16}$in. in diameter. Generally a fresh hole or two appear each day, and they are distinguished by a discharge of yellow powder. What is the cause, and how can any remedy be applied?"

The reply published on p. 113 of the BUILDERS' JOURNAL for October 1st last will indicate the cause of the trouble complained of and also its cure. A recent statement—repeated with due reservation—gives the origin of the tunnelling as the larva of the "death-watch" beetle, and this view is to some extent corroborated by the "Encyclopædic Dictionary," which says that the name "death-watch" is "commonly applied to certain species of wood-boring beetles belonging to the genus Anobia." This work names two species which have been proved to produce the ticking, viz., *Anobium tessellatum* and *A. striatum*; quoting from Darwin's "Descent of Man" it gives: ". . . death-ticks *(Anobium tessellatum)* are well-known to answer each other's ticking." The same work, as an alternative description, classes "death-watch" as "a minute wingless insect, *Atropos pulsatorius* . . . . often seen in collections of dried plants, in neglected books, &c." As a cure a friend assures me that he has been unfailingly successful by injecting oil of vitriol (the ordinary, impure sulphuric acid of commerce) into each hole, using an ordinary joiner's oil-can with a fine nose and a strong springy bottom, the holes on the surface being afterwards stopped with beeswax. H. E.

French Windows.

HEMEL HEMPSTED.—No. 1 writes: "How would a French window be sketched to correspond, if possible, with a room having the ceiling joists showing panelled dado, &c.? A client wants an old-fashioned looking dining-room with French windows to open into conservatory."

See pp. 133 and 134 of Ellis's "Modern Practical Joinery" (B. T. Batsford).

Lattice Girders.

CROYDON.—H. M. writes: "Do you know of any list giving designs and strengths of lattice girders?"

There are a few tables for calculating stresses and designs in T. Claxton Fidler's "Practical Treatise on Bridge Construction" (Charles Griffin & Co., Ltd., 30s), where the theory is dealt with. There are a few calculations and a discussion of the theory in Anglin's "Design of Structures" (Griffin & Co., 16s.). We do not know of any catalogue giving a list of strengths and designs as ordinary girders and columns are dealt with.

Open-Air Pulpits.

Referring to the enquiry on p. 180 of the issue for October 29th, "W D." (Leeds) writes: "A good example of an open-air pulpit is to be seen on a dissenting church in Briggate Street, Glasgow."

Architects' Assistants in the Office of a Borough Surveyor.

REDRUTH.—ARROW writes: "(1) After some years' training in an architect and surveyor's office, would passing the examination of the Incorporated Association of Municipal and County Engineers qualify one to obtain a situation as assistant surveyor in a borough engineer and surveyor's office under a council? (2) And granted the same conditions, would passing the examination of the Sanitary Institute be sufficient to obtain an inspectorship? Is the supply in excess of the demand? (3) Kindly mention the various sanitary and surveying and engineering journals."

(1) The passing of the examination of the Incorporated Association of Municipal and County Engineers is certainly the first step towards qualifying for a post as assistant surveyor in a borough engineer's and surveyor's office, but practical experience in such an office as second or general assistant is also very necessary. I think you would experience some difficulty in obtaining such a post in the absence of previous training in a borough engineer's office, as there is a variety of work passing through such an office of which the necessary experience could not be gained in an architect's office. You would most probably find it necessary to enter as second assistant in the first instance, and so gain experience which would adapt you for a subsequent position as assistant surveyor. (2) The same general remarks apply to the examination of the Sanitary Institute; but for an "inspectorship" the term of pupilage and training so essential in the former case is not applicable. Some previous practical experience in the work is also here very desirable. Then as to the question of supply and demand of candidates in the respective positions named above. The supply of really good and fully qualified assistants, of both classes, is certainly not in my opinion in excess of the demand, but there is a bountiful supply of indifferent, partially qualified and wholly unqualified applicants who are ever striving to enter the ranks. There is, I believe, room for thoroughly good men only. (3) The chief professional journals are:—"The Surveyor," 24, Bride Lane, Fleet Street, E.C.; the "Sanitary Record," 5, Fetter Lane, E.C.; and the "Engineer," Norfolk Street, Strand, W.C.

W. H. M.

Thickness of Glass Floor-Plates.

KIRKCALDY.—D. F. S. writes: "How can one determine the various areas for the different thicknesses of rough plate glass to be safe for walking over when used for lights to a basement and only supported at the four sides of each sheet? Would a sheet 3ft. square and 1in. thick be safe for ordinary foot traffic in a dwelling-house?"

I was unable to find any tables of the transverse strength of glass, and therefore did what "D. F. S." might have done, namely, tried the experiment for himself: the result of which, when analysed and reduced to its simplest form for practical use, was to show that for dwelling-house floors the thickness in inches should be not less than one-third of the span in feet, and for warehouses not less than half the span. The span is the shortest distance between the supports, and no allowance is made for the support in the other direction, as plates are often butted without a support at the joint.

HENRY ADAMS.

Damages for Copying another Man's Plans.

SHREWSBURY.—C. R. D. writes: "A builder who carried out a pair of semi-detached villas from my plans, specification and quantities lent them to a person who contemplated building houses of a similar class. This person copied them, and engaged another contractor to build the houses. Can I recover any compensation either from the builder or the person to whom he lent my plans?"

Simple as this question would be if architecture, like medicine, were a registered profession with a legalized general council to deal with such cases, it is an exceedingly difficult one under present circumstances. That the builder had no right to lend documents which did not belong to him is perfectly clear, and very few builders indeed would think of doing so, for their honour's sake if they be respectable men, and if not for fear of being boycotted by all architects who may happen to hear of their conduct. On the other hand, it is very doubtful whether the architect could recover damages. He would have to show that he had suffered damage either in pocket or reputation, and this would be almost impossible—for the plans, after all, are not his at all, but belong to his client, who has paid for them. The only advantage of action would probably be to make the matter known to the architects in the locality without risk of the builder bringing an action for slander. G. A. T. M.

Strength of Rolled Joists.

INGATESTONE.—R. H. B. writes: "Is the section of 8in. by 5in. for steel joists sufficient for the span (23ft.) indicated on sketch (not reproduced)? The ends would be built in and have a bearing of 9in. on the piers. The floor above is of 9in. by 2½in. joists and 1in. flooring-boards, which will have to carry wood partitions to form bedrooms."

The floors of dwelling-houses must not be designed for a less load than 1cwt. per ft. sup. Although in the ordinary way the furniture may be light and the occupants few, there are occasions, such as auction sales, when the loads are enormously increased, and no guarantee can be given that the floors will not at some time or other be subject to the full load. Again, for a span of 23ft. the least depth of joist that can be adopted will be 12in., and in this case, instead of 8in. by 5in. by 30lbs. R.S.J.'s, there will be required Dorman, Long & Co.'s G 7, viz., 12in. by 6in. by 54lbs. R.S.J.'s. The wood joists may be 9in. by 2½in., with 1in. flooring. The building in of the ends of the rolled joists is not sufficient to add anything to their strength.

HENRY ADAMS.

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Supplement to
THE BUILDERS' JOURNAL AND ARCHITECTURAL RECORD,
Wednesday, November 12th, 1902.

NEW PREMISES FOR MESSRS STANDEN & Co Nº 112 JERMYN STREET St JAMES' S.W.

REGINALD MORPHEW - ARCHITECT.

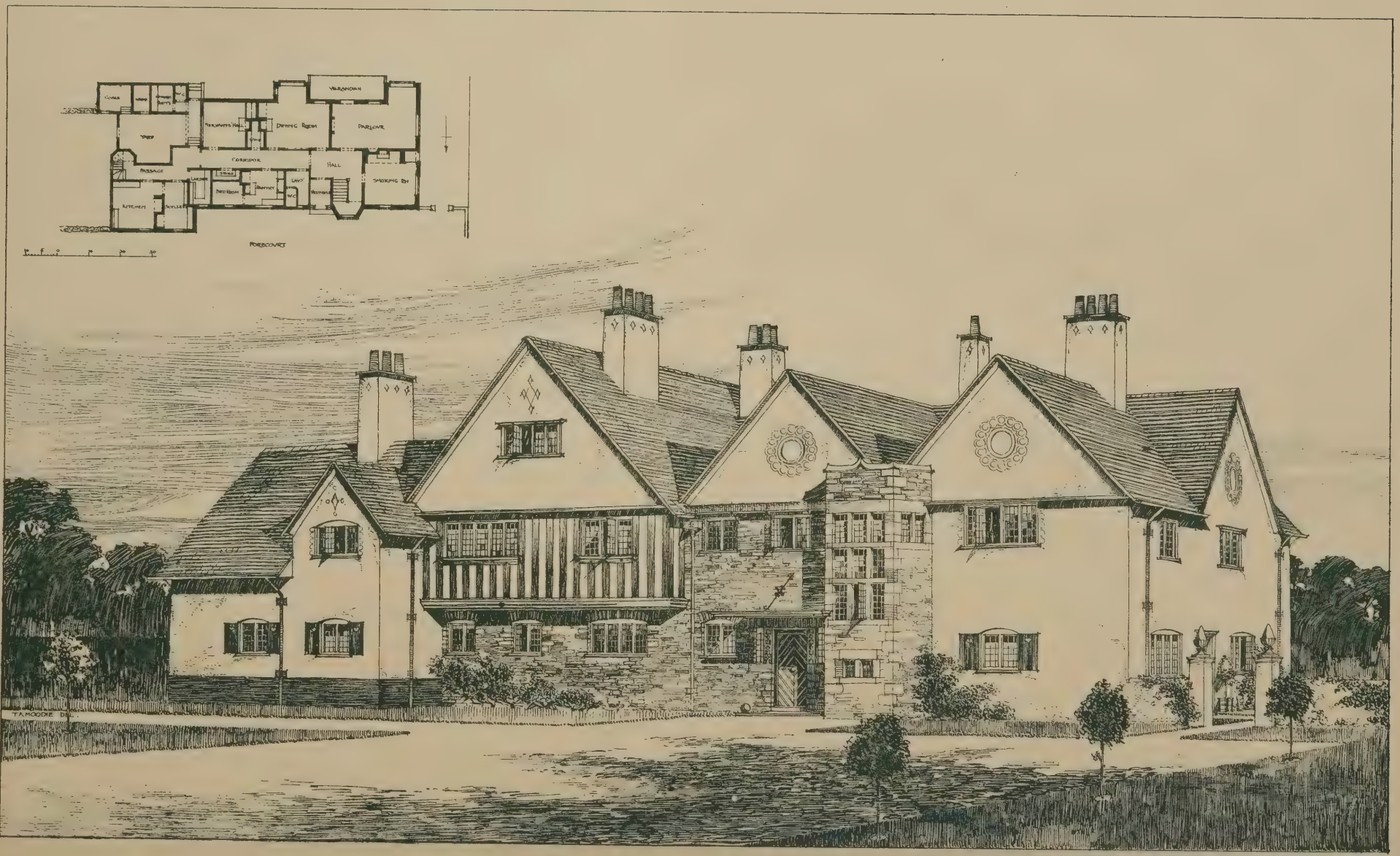




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"PHOTO-LITHO." R. J. EVERETT & SONS, 58 LUDGATE HILL, E.C.

WESTHOPE MANOR, SHROPSHIRE: THE ENTRANCE FRONT. E. GUY DAWBER, ARCHITECT.

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THE ARCHITECTURAL ASSOCIATION.

ROOF COVERINGS.

By F. C. EDEN.

A MEETING of the Architectural Association was held last Friday evening, Mr. enry T. Hare, F.R.I.B.A., presiding. The inutes having been confirmed, Mr. Hare nnounced a special meeting to be held on ovember 24th to accept the offer of the remises of the Royal Architectural Museum nd Westminster School of Art in Tufton treet, S.W. (see p. 205).

The following were then elected members:— lessrs. Percy Luker, M. C. M. Leggett, '. A. Jaques, E. M. Ellis, B. E. Atkinson, mr., R. W. White, A. E. Brooker, H. lutchinson, F. B. H. Carrel, William Jones, I. T. Tovey, H. A. Aitken, J. S. Cable, F. C. lears, J. H. Reynolds, James Ewing, F. J. latthews, E. L. Hampshire, E. F. C. Buckley, I. A. Fairhead, J. C. Bull, J. D. Winder, A. . Richardson, Vincent Hooper, J. L. C. ilks and W. Flockhart. Mr. F. C. Eden nen read his paper on "Roof Coverings," of hich the following is a summary:—

It has often been a surprise to me to notice n how many modern buildings of something nore than a pretence to architecture the roof eems to have been left almost to chance. nd yet the roof exerts an influence which, nough often unperceived, affects the mind so owerfully because, far more than any eculiarities of detail, it impresses the build- ng with the indefinable stamp of character nd of style. Just as the most beautiful tone which nature has to offer may be spoilt y stupid and mechanical tooling, or still nore so by polishing, as in the case of ranite; so the form of a roof may be as legant as possible, but if the covering naterial be unintelligently made or mechani- ally applied the roof must be ugly. Archi- ectural beauty is, indeed, but skin deep. Beautiful materials make good roofs; and gly materials, without exception, so far as I now, prove in the long run to be bad naterials.

In reply to the question, What makes a roof eautiful, or the reverse? I suppose the nswer most commonly given would be form nd colour. This is only partly true. The eally important quality, in my judgment, s

Texture.

A roof may be poor and neutral in colour, s are many of the old Cornish roofs of Delabole slate (though, indeed, if she find the urface sympathetic Nature usually takes are of the colouring), but with good texture he simplest roof becomes interesting and aintable. The true reason why Westmor- and slates make a better roof than Welsh s not because they are green and the others lue, but because they cannot be split so thin r be so mechanically dressed. There is a hin green slate in the market which makes s ugly a roof as ever emanated from Port Madoc.

In theory, I suppose, all are agreed as to the ightness of using local materials. It is in ractice that the shoe pinches, since cheap- ess of transit has put so many and great emptations from Bangor and Broseley in our way. But, stale though the exhortation be, may I urge that, however monumental uildings and buildings in large towns be oofed, in the country and in dealing with ottages and other small buildings it is of the utmost importance to the landskip that the natural material of the country-side should be used rather than material imported from a distance.

Let us suppose that a cottage is being built n a tile district. Some might prefer (for easons which will appear) laying the tiles on riven oak laths rather than on boards or battens; bedding them not in mortar, which either drops out or holds the wet like a sponge, but in hay, moss, reeds, dried marsh-grass, or whatever may be the available material and traditional usage of the district. The problem—almost an insoluble one—is how to admit plenty of air between the tiles while excluding fine, powdery snow. "Nobody," says Mr. R. Nevill, "who, in taking off old roofs, has ever seen the horrid mess to which the hay in a few years becomes reduced, would ever think of adopting so useless and pernicious a method." Felt, he goes on to add, is no better, and after some years becomes worse than useless. A draughty cock-loft makes a dry roof. But if the aspect be much exposed the underside of the tiles can be torched, this method being, perhaps, less open to objection than bedding in mortar. Fifty degrees is a suitable pitch. What builders call the square pitch, or pitch of 45 degs., hardly ever looks right, whatever the roofs be covered with.

The Roof Timbers.

If the roof be of the collared rafter form, the timbers might be of larger scantling than the usual 4in. by 2in., but spaced further apart, say, 1ft. 6in. to 2ft. from centre to centre, the interval need not be equal. The timbers being large enough to be framed instead of spiked together, a stronger roof is obtained, while the slight sag of the laths between the rafters produces that ribbed appearance which we admire in roofs that have kept out the weather for generations, and which is the result not so much of age as of this method of construction. Another advantage incident to the use of laths is that, owing to their irregularity, it is impossible to get a straight edge to the course. The examination of ancient examples makes it clear that effects of this kind were studied, and not accidental. For instance, in repairing the fifteenth-century roof of Ockwells Manor—a house evidently designed with much thought and skill—it was found that the purlins were placed at such a level that the rafters did not touch them by about 1in. until they were loaded, and when the roof was stripped they sprang back to the straight again. By this simple means the position of the principals is marked on the outside of the roof by a gentle undulation, not an untruthful method of construction, and one which serves to give delicate relief to the roof planes without destroying their breadth and simplicity—relief which we seek in vain with gablets, dormers, bands of glazed tiles and what not, whereas it is just this soft play of light and shade upon an otherwise unbroken surface which gives so much quiet charm and character to old-world roofs.

Characteristics of Tiles.

All nature can do with any thin, flat, vitrified tiles is to scale them, crack them, blacken them, and finally blow them off the roof. But a rough, hand-made, sanded tile, she will not only be waterproof, if that be needed, but will paint it with her most delicate greys and brightest orange. Firstly, then, no Broseley or other machine-made tile can possibly, owing to its flatness, uniformity, and unsympathetic surface, produce a roof with any character—a roof such as an artist would care to paint. A good tile will be hand-made. Then as to size. Some old ones are as narrow as 4in.; 6in. is a usual width, but I think 5in. to 5½in. looks better. With hand-made tiles there is no difficulty, if the order is given in time, in procuring them of any specified width, the mould, from which many thousand tiles are made, costing about 2s. 6d. The length is usually about 10½in., but the thickness is the really important dimension, and nothing under a full ½in. should be used; ⅝in. is better.

Next as to Shape.

The set of a tile, or curve in the direction of its length, is given by placing it when partially dried on a shaped bed of sand; but the buckling, or curve across its width, is the result of hard burning. A buckled tile means a well-burnt tile, and should be by no means rejected. Buckled tiles are especially useful for wall-tiling, and when the sun strikes obliquely across them the effect is charming.

Texture of the surface of each individual tile is produced by plentiful sanding, and by not scraping out the mould too often in the effort to get a neat tile as near as possible to a machine-made one. The nail holes are better punched by hand, and not by any mechanical process, as is sometimes done, even in hand-made tiles. The slight inequality in the level of the holes causes the tile to hang unevenly—a little matter, but an important one, as when each course looks as though laid to a steel straightedge the effect is unpleasant. The colour of a tile depends on the amount of iron in the sand and on its being burnt with a clean, fierce flame such as wood gives. With wood the temperature can be more easily varied than when coal is used, and it is possible to obtain a greater intensity of heat towards the end of the burning, so as to bring about that incipient vitrification of the middle layer of the tile without affecting its surface, which makes it impervious to moisture.

Needless to say, tiles should not be "selected for uniformity of colour," as some specifications require. It is only by slight varieties of colouring in the separate tiles that the colour of the roof as a whole becomes beautiful.

In a good roof there are many little

Practical Dodges to Defeat the Weather

which all help to give interest and variety to its surface. For instance, where the tiles abut against vertical surfaces, as chimneys, gable copings, party walls, and the like, they are given a slight upward tilt sideways to throw the water away from a naturally weak place. This was the case in all the old roofs at Gray's Inn until they were relaid in recent years, when they were all smoothed out with admirable skill, so that the rain has every inducement to soak into the mortar fillets. A similar practice is that of laying a tile flat along the verges against the end rafter. This gives a side tilt, which prevents rainwater trickling down the gable face. This specially-made tile, known as "tile and a half," should be avoided, as the effect of a very broad tile in every other course is unpleasant. A good tiler can work the verges perfectly well without it by a little cutting.

For Ridges

nothing is better than the plain half-round. It has a sanded face like the common tiles and is thicker—say, about 1in.—and is bedded in hair mortar. A thickish projecting fillet of white mortar over each joint has an agreeable effect. I have not noticed it in this country, but it is the usual practice in the North of France. Special end ridge tiles do not look so well as a bottle end or pebble in mortar in an ordinary ridge tile.

For the valleys it is not always necessary to use valley tiles or lead. A pleasant effect is produced by sweeping the tiles round. This involves a certain amount of cutting and some packing on the back of the valley rafters and, unless you are fortunate enough to have an unusually skilled and old-fashioned tiler, an enormous amount of personal supervision. But I think the result is worth the trouble.

It may or may not be true that you can always tell an Adam house by the eaves, but, anyhow, they are not a bad test of a well-designed house; for the most emphatic point in a small building is the eaves. When the sprocket-pieces or rafter ends show, their management demands great care. Nothing can be worse than the effect of a row of

narrow sprockets laid on edge, all of exactly the same scantling, and all spaced at exactly the same interval—possibly all varnished into the bargain. A better way is to lay the sprockets flat, whatever you do with the rafters, to space them unequally, and to vary their sizes. In small houses, where the eaves have much projection, the soffits can be boarded, lathed and plastered, or treated as a cove. With slight overhang, a cornice of wood or stone may be comfortably tucked under the projecting tiles or slates.

Eaves Gutters.

All eaves gutters are something of a disfigurement. Substitute for the pleasing irregularities of the natural eaves' line, a line just as hard as cast-iron can make it; in other words, fix a half-round gutter, and not only eaves but, to a great extent, elevation also will be spoilt. Where it is necessary to collect the rainwater, or where walls are thin, it is better to use wooden spouting. It may be square or **V**-shaped in section, or hollowed out of the solid, but it must be kept small or the effect is clumsy. The downpipes in this case will be of wood, with tapering heads, and will stand clear of the wall, to which they are attached by long holdfasts.

When a parapet or cornice gutter is out of the question, nothing looks so satisfactory as dripping eaves. It is the rule where thatch is used, and, in fact, with the majority of old roofs, though it must be acknowledged that with 9in. walls the result would probably not justify a reversion to methods that are suitable only to good building. At the same time, it is not likely that dripping eaves have ever done as much damage in three centuries as neglected guttering and downpipes, choked with their own rust, and discharging the collected water of successive seasons into the walls, have done in a single generation.

Slates.

Of slate roofs, I think those are prettiest where the slates are very small and thick and the graduation not too obvious. Old Cornish roofs are of this type: they sometimes have two or three courses of very large slates at the eaves.

What are known as stone slates, such as occur in Oxfordshire and Gloucestershire, make, perhaps, the most beautiful roof of any. Of the heavy Horsham slates, as used upon Sussex houses, Mr. Guy Dawber writes: "The slates are very large at the eaves and diminish in the usual manner to the ridge; but they lack the finish and texture of the small Cotswold stone slates, and are more nearly allied to the heavy roofs of Lancashire and Yorkshire. We notice that directly these slates are used the pitch of the roof is flattened; for these old builders, so sound in their practical knowledge, at once recognised the impossibility of covering with heavy stone slates steeply sloping sides where all the drag and strain would be on the pegs and laths, and to this can doubtless be attributed the reason of our constantly finding these roofs cemented and stopped with mortar, for their flat pitch has the disadvantage of not always keeping the wet out without extraneous aid" ("Old Cottages," p. 21).

In Gloucestershire, I believe, the roofs are galletted as well as torched—that is to say, after the slates are laid they are gone over carefully on the underside, and small slips of slate are inserted in the larger crevices which arise from the unevenness of the slates, before the torching is proceeded with.

Lead.

When the roof is of steep pitch and show conspicuously against the sky, lead is not suitable, except to monumental and lofty buildings, in which the proportion of visible roof to wall surface is not large. A cottage roof, with eaves 10ft. or less from the ground, would not be a pleasing object if covered with lead. When the roof is flattish and but little seen, or entirely hidden by parapets, as in many late village churches, lead is the obvious material to use. Again, it is especially suitable to those small and highly decorated roofs such as often surmounted octagonal turrets of the Tudor period. In many old churches, including Exeter Cathedral, the sheets are not laid parallel to the gable copings, but strike into them at an angle. Then, too, the boarding under the lead in mediæval roofs was not close laid, but with gaps of about 2in. between each board. The motive of both these devices was, by increasing the friction, to keep the lead from creeping; and each gives some interest to an otherwise mechanical surface. The boarding in old roofs is almost invariably oak; with modern imperfectly seasoned wood chemical action is set up and the lead perishes; but if the boarding be thin, say ½in. and water-seasoned, I believe it is safe to use oak: however, no doubt desilvered lead is more easily acted upon by acidulated vapours than the lead which was used before 1840, when the desilvering process came into use. In modern roofs the rolls are often too big, owing to the use of a wooden core. A welt is better, except in flats, where there is likely to be much walking about, and consequently the wooden roll becomes a necessity.

There is no practical reason why the sheets should all be of equal width, and a very good æsthetic reason why they should not be. I do not say that they should vary to the extent noticeable in old roofs where there has been much patching, but just enough to destroy the mathematical accuracy which teases the eye.

In old English roofs there is no ridge roll, but the sheets are lapped over several feet at the top; and I believe the ornamental ridge was rare.

The Lead used should be Cast,

not milled. "It is almost useless," says Mr. Lethaby, "trying to put interesting workmanship into dull and poor materials. It must be allowed that modern sheet lead has a poor, mean, crushed mill-board look, and its wretched colour puts it quite out of court as anything but a mere makeshift. Cast lead, on the contrary, has a beautiful surface; it is cast with the greatest ease, with the most simple of appliances, and does not blacken by exposure to the air as milled lead does. . . . In gutters and flats cast lead should be used, if for practical reasons alone. . . . . It is said that milled lead was introduced into England about 1670. The plumbers of the time opposed its use and said it could not be durable. The Milling Company replied by offering to keep milled lead of 7lbs. a ft. in repair for forty years for an insurance of ¼ per cent. That, to me, seems saying very little for the material; it would have said little in the Middle Ages at least. Then the forty years' view of things had not been invented" ("Journal of the Society of Arts," xlv. 456).

The greater number of lead roofed buildings have parapets or cornice gutters, but in many old churches there is no gutter, but the lead hangs easily over the eaves like a flounce, which gives a curiously forlorn look, not without charm.

Thatched Roofs.

Thatchers must be a stubborn race, for they have preserved the traditions of their craft in spite of modern improvements; and though the best materials are not now available, reeds being no longer grown for the purpose and wheat straw being too much broken by threshing machinery, their work seems to be as well done as ever. Neatness, which is the bane of slate and tile roofs, is most appropriate to thatch. The more it resembles well-combed fur and the less it suggests a heap of sodden refuse the better. The characteristic beauty of thatch is the grace and ease with which it undulates over hips and dormers and projections of every kind, combined with the curious sense of snugness which it conveys. No eaves gutters are used, and no flashings are necessary against stocks or gable copings. If the walls are plastered a coating of tar about 1ft. 6in. high along the base is a sufficient protection against damp that rises from the drip.

The thatchers' trade is slowly dying out. Between the years 1851 and 1891 their numbers declined from 6,000 to 3,000; and it is to be anticipated that they will not be able much longer to resist the inroads of improvement and the superior attractions of corrugated iron.

Discussion.

Mr. H. D. Searles-Wood proposed a vote of thanks to Mr. Eden, but disagreed with his point of view. Mr. Maurice B. Adams seconded, and said if architects were to attempt to build a house as Mr. Eden recommended without any eaves-guttering, the plans would not be passed by the local authorities. To obtain timbers of different sizes was difficult and added to the cost. The suggestions in the paper would be extremely difficut to put into practice.

Mr. Henry Lovegrove quite disagreed with almost all the suggestions of Mr. Eden. He was sorry there were not a few more practical details and not so much theory. He was rather sorry to see thatch roofs dealt with at this day; they kept vermin in, and were not always waterproof. Zinc had not been referred to. He thought that the angle of a roof should be more than 45 degs. Mr. R. H. Weymouth next spoke, and Mr. Louis Ambler said he was rather in favour of regarding colour as more important than texture. Copper had not been mentioned; he thought its green colour was pleasing in towns, but did not harmonise with foliage. Mr. Henry T. Hare said, with regard to thick tiles and stone slates, the cost of heavier timber was very little extra.

THE HELLENIC SOCIETY.

At a meeting held last week a paper was read by Mr. Jay Hambridge on "The Natural Basis of Form in Greek Art, with Especial Reference to the Parthenon." He contended that the disposition of the elements of form in symmetrical natural objects justified the presumption that there were definite principles governing those forms. The mathematical knowledge possessed by the Greeks was not sufficient to enable them to work out the complex details of their architecture, and he suggested that their conceptions were derived from the observation of the contour of a butterfly's wing, the scales of a fish, the harmonious subdivisions of a crystal, and of other natural objects. For the development and application of the proportions thus derived from natural objects nothing more elaborate was required than a stick, a piece of string, and a smooth surface. By these empirical methods it would be found that osculating circles, squares, regular pentagons, and other polyhedra might be evolved. The employment of these simple proportions explained how the Greek decorative artist could refine the curvature and symmetry of such ornamental motives as the spiral of the Ionic volute, &c. Applying these empirical rules to the Parthenon, Mr. Hambridge claimed to have established measurements in almost complete accord with those of Mr. Penrose in his work on the Parthenon. Mr. Penrose, in commenting on the paper, said that some of the proportions worked out by Mr. Hambridge were new to him, though he did not doubt their accuracy; but he was inclined to think Mr. Watkiss Lloyd's scheme of numerical proportions between low numbers would more commend itself to architects.

EDINBURGH A.A.

THE opening meeting of the forty-fifth session of the Edinburgh Architectural Association was held in the Association's rooms, 117, George Street, last Wednesday. Mr A. Hunter Crawford, the president, was in the chair. It was resolved that a communication should be sent to the town clerk, suggesting that the architectural profession should have an opportunity of submitting designs in competition for the proposed Usher Hall. The chairman intimated that the Association had become affiliated with the Royal Institute of British Architects. Mr. Crawford, in the course of his presidential address, said that in one branch of activity their association was wanting: they had no work classes or studio. Since the School of Applied Art was begun their work classes had been discontinued, as it was felt that as long as that school provided good teaching under the immediate control of architects, that anything their Association could do would be a hindrance rather than a help. They were unanimous in acknowledging the excellence of the architectural education supplied by the School of Applied Art, especially in draughtsmanship and knowledge of style, and architects had seen the results with their own assistants; and the marked success of its students (out of all proportion to their numbers) were known to them all. Could they rely on this school being continued on the same lines as hitherto, with a prospect of its development to include all the teaching necessary for the full education of their students, they could wish for nothing better; but this was improbable, everything pointing to the early closing of the school, or at any rate its removal from the direct control of architects engaged in the daily practice of their profession. So soon as the school lost touch with practising architects they might look for a falling off in results. There might be more passing of examinations, more leaving certificates granted, more academic teaching, but the results, so far as providing the students with ability to design and knowledge to construct, would be found to be meagre in the extreme. He asked the architects present what weight they gave to South Kensington certificates of honours in building construction when engaging an assistant? Was it not almost invariably found that knowledge acquired to pass these examinations was of little use when the student was brought face to face with a single piece of real building construction? Book learning was only an infinitesimal part of the education of an architect. It was absolutely essential, geniuses excepted, that the education should be given, or, at least, directly controlled, by architects in the active practice of their profession. In his experience in this country he had not seen great results from the professional or University teaching of architecture, while everything pointed to the good that was done by teaching it in a school where practically the whole of the teaching was given by architects in active practice. In any reports he had seen regarding proposed changes in art education in Edinburgh, no one had taken up a strong position in this matter, which he believed to be the most important in the whole question. It was the principle which was adopted at the inauguration of the School of Applied Art. On the motion of Mr. Thomas Ross, of Messrs. Macgibbon & Ross, seconded by Mr. Daniel Macfie, Mr. Crawford was cordially thanked for his address, and the proceedings terminated.

A new Fire-Brigade Station at Homerton has been erected in High Street for the London County Council. The site cost £1,750, and the building something over £8,000.

Bricks and Mortar.

Aphorism for the Week.

A great architect must be a great sculptor or painter. . . . If he is not . . . he can only be a builder.—RUSKIN.

Our Plates. THE builder of the new premises for Messrs. Standen & Co. was Mr. J. Greenwood, of 10, Arthur Street West, London Bridge, E.C. The building is faced with the best Portland Whitbed brownstone. Messrs. J. & A. Crew were the masons. The fittings on the ground-floor are carried out entirely in oak, and throughout the rest of the building in pitch-pine. Mr. Reginald Morphew is the architect. —The two drawings of Westhope Manor, Shropshire (Mr. E. Guy Dawber, architect), were exhibited at this year's Academy.

Wooden Houses for Rural Districts. ABOUT two years ago Mr. E. D. Till, of Eynsford, Kent, pulled down an offending structure because it was opposed to urban by-laws, and finally obtained the Local Government Board's permission to build one-storeyed labourers' cottages in wood, with 30ft. of isolation. Acting on this concession, he erected a six-roomed labourer's wooden bungalow, replete with every convenience—kitchener, wash-boiler, bath, &c., and surrounded it with a quarter of an acre of garden. The rural district council of Dartford, who, it afterwards appeared, had declined to accept the Local Government Board's concession, commanded Mr. Till to eject the labouring man and his family and pull the structure down, although they knew perfectly that the housing conditions at Eynsford were so disgraceful that there was not a vacant house in the village. On declining to comply with their demand, on the ground that the Local Government Board had conceded the privilege to build in wood (and furthermore had lately published a rural code of by-laws expressly to relieve country parts), they brought Mr. Till before the magistrates at Dartford, mulcted him in heavy costs, and he is obliged to turn out the tenant in two months' time, to the intense regret of the latter, his wife and his children, who declare they were never more comfortably housed! "Moreover," says Mr. Till, in a letter to the "Times," "unless the Local Government Board promptly exercise their superior authority over this petty local council, the bungalow will be demolished and years of effort, as well as all the outlay I have entailed for the improvement of labourer's housing, will have been thrown away. And what for? To gratify the offended pride of an unreasoning set of men who ignore the need of the labouring population, which is widespread and urgent hereabout."

Hull's Scheme. WITHIN the next year or two the appearance of the centre of Hull will have entirely changed. The main feature of the scheme is the construction of a fine central square, from which all the main thoroughfares of Hull will radiate. In the centre is to erected a memorial statue of the late Queen, provided by public subscription. On the west side of the square is being erected a huge block of shops and a public hall for concerts and public gatherings (Mr. Joseph H. Hirst, city architect). This part of the scheme will take six years to execute, and in the process an entire thoroughfare, Engine Street, will be swept away. Meanwhile a fine new road has been added to the city by the construction of King Edward Street, a continuation of Prospect Street in a direct line to the new Victoria Square. At the point at which it enters the square, and at the corner of Waterworks Street, are slowly rising the new offices (in red brick and terra-cotta) of the Prudential Assurance Co., designed by Mr. Waterhouse. Facing it, at the opposite corner, is the stone structure which the Lancashire and Yorkshire Railway Co. are erecting for their branch offices. Close by a building is in course of construction for Messrs. Powolny, Ltd., with polished granite columns and pilasters and carved stonework upon a somewhat lavish scale. Messrs. Boot, the chemists, are just commencing the building of a highly-ornate shop next door. "The variety of styles exhibited in these large buildings removes the suggestion of uniformity which the general employment of terra-cotta, red and yellow, might otherwise have conveyed." Almost due east from Victoria Square a new street will provide direct access to that part of the city lying on the other side of the river. It will contain the new Police Office, which is rapidly rising, and the new General Post-Office, which is to cover a very large area of land at the corner of Lowgate. A new street, already made and partly lined by lofty shops, bears the name of Mr. Jameson, the original author of the scheme. It continues the fine thoroughfares of George and Charlotte Streets through to the upper end of King Edward Street, and has marble statues of Andrew Marvell and William de la Pole, two of Hull's most famous burgesses. From this point a road is about to be made direct to the railway station. Its construction, which is estimated to cost about £75,000, will complete a series of works comparable with any of the rebuilding projects which have been executed in the North of England during the past twenty years.

Gopsall Hall. IN a few weeks the King proposes to visit Gopsall Hall. This hall was built and the grounds laid out in 1750, at a cost of £100,000, by a Mr. Charles Jennens. He died without issue in 1773, and Gopsall, or Gopeshille, passed into the hands of his grand-nephew, Penn Asheton Curzon, who made a considerable collection of pictures and adorned the grounds with ornamental temples. The principal front of the hall looks towards the south, and in the centre there are six finely-proportioned Corinthian columns supporting a row of balustrades, behind which there is a receding pediment forming part of the wall of the house itself, with a ship in a storm carved in white stone, a haven in the foreground. On each side of the centre of the front is a wing (that on the left forming the chapel and the other the library), projecting 27ft. from the front, the whole of which, including the two wings, is 180ft. The principal entrance is at the north front, and there is a small stone portico over the door leading into the entrance hall. At the south end of this hall, which is about 28 ft. square, is a gallery, noticeable for its Corinthian columns and richly-carved balustrades, which forms a passage into the sleeping-rooms above. The library is a lofty and capacious room; and there is a fine painted glass window at the south end, executed by a Baroness Howe. The chapel is 36ft. in length and 24ft. in width. The seats, altar and wainscotting are entirely of cedar, richly carved. The ceiling is chasen in flowers; the reading desk is partly formed of a golden eagle, with wings expanded, and the other parts are of cedar, elaborately carved and decorated. At the entrance to the park, near Twycross, is a lodge built after the arch of Constantine, by Sir G. Wyattville.

A new Electric-Generating Station a Greenhill is being erected for the Oldham Corporation, the architect being Mr. C. Stanley Peach, F.R.I.B.A., of 28, Victoria Street, S,W. The Columbian Fireproofing Co., Ltd., of 37, King William Street, E.C., have obtained the contract for the fireproof floors and roofs.

BUILDING CONSTRUCTION.—I.

[By Our Special Contributor.]

I PROPOSE to give a few articles in continuation of those I wrote last year, having special regard to the syllabus of the Board of Education. The previous articles commenced with what is sometimes called (not quite appropriately) strength of materials—considerations of stresses and strains (applied forces and the resulting strains and deformations in simple structures used in building). Not because this was the most elementary beginning to make, but because this essential part of the subject most needed immediate attention. It was attempted to put it in a somewhat new form, and the intention was to confine the work within the limits of application absolutely necessary to students of building. It is possible to condense this instruction into two or three sheets of exercises, which a good teacher who thoroughly understands the subject and is not too fond of wasting time in exercises of remote practical value might find of considerable use to his students. It should be remembered, however, that the mere copying of diagrams from sheets or cards is of little or no educational value.

The present series of articles will have special regard to the requirements of the "Advanced Stage." Students must be prepared to undergo some dry reading; there is no "royal road": these articles are, though simple and elementary, not intended to be light and amusing reading. There is a real pleasure in seeing the growth of a building which one has planned, and, in a less degree, if one has studied the plans or has been employed upon the plans in the office. It is proposed to place before the reader the complete drawings of a simple commonplace middle-class country house and offices which have been built and are occupied, and a number of the articles will specifically refer to this particular work. It is hoped that in this way book instruction may be made as practical as book instruction in this subject can be made. Students who have the opportunity of seeing the complete building of a house in course of construction cannot do better than visit it from time to time, note what they see the workmen do, observe the tools, take note of quantities of materials, &c., &c.; to compare the work as executed with the plans and instructions, and to try from time to time to place themselves in the point of view of the designer whose duty it is to have his ideas and instructions accurately carried out.

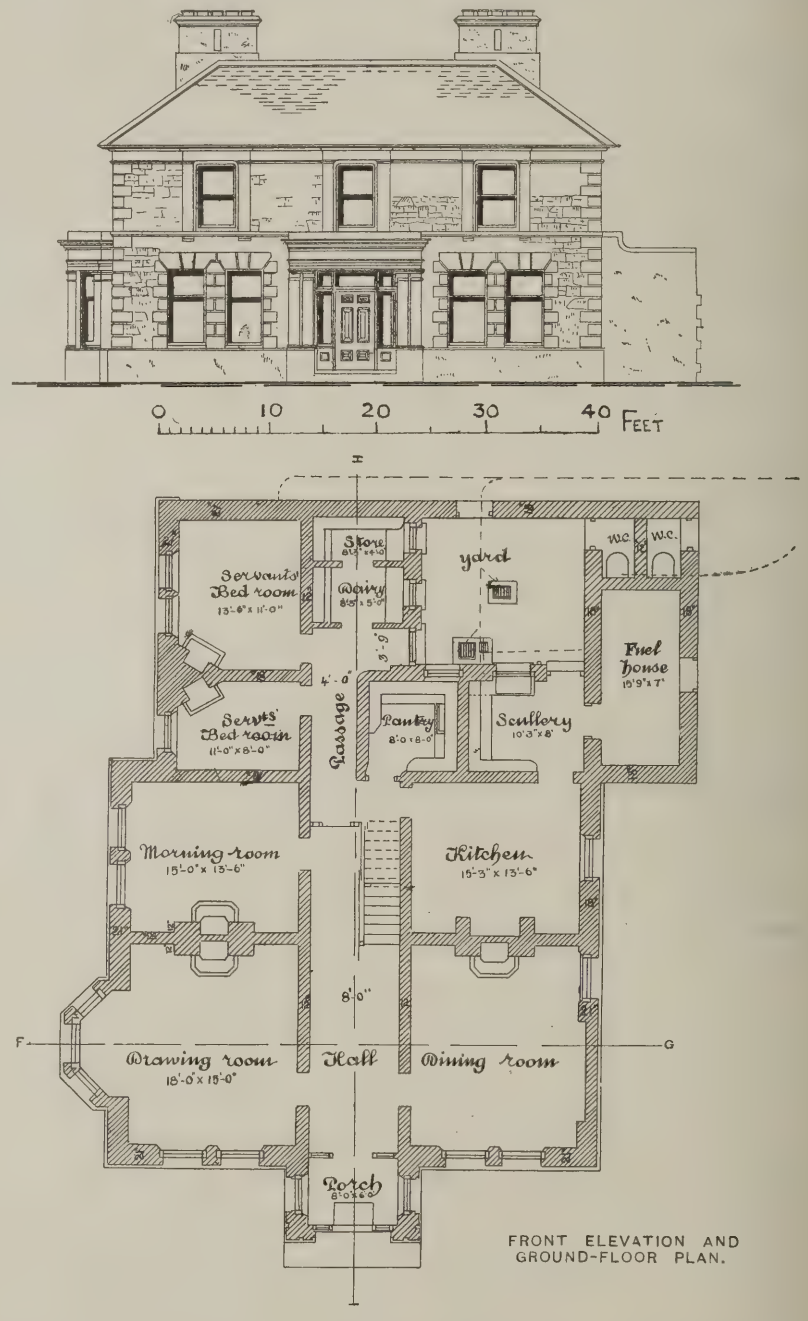
There is no limit to the "science" which may be applied to any trade; but there are narrow limits to the science of the ordinary average workman who has learned his "trade" by an ordinary apprenticeship. No student could, if he tried, be a skilled workman in all the trades concerned in building.

Much of the value of a tradesman's work is the result of habit, acquired instinct, the repeated performance of simple actions. For example, in the simple operation of coating a ceiling with distemper the house-painter may not know that he applies a *centrifugal* force to keep the colour at the working end of his brush; the unpractised hand if he tries the job will have the colour running down the handle and, by way of his hand, along his arm to his body inside his clothes. With limitations of this kind, the science known to the average workman might be put for each trade within the limits of one of these articles. It is not too much to expect from the student of building construction that he should know this much of every building trade.

In drawing up what is called a specification (the particular description of workmanship and materials in a proposed building) attention is paid to the various trades concerned as distinct parts of the specification. It will be noticed, also, that the sequence has some regard to the order in which the work is commenced and proceeded with. It is usual to begin with excavation, because the first work to be done is the preparation of foundations, but the finishing touches may also come under the same heading as the dressing of the surface, forming carriage-drives, &c., and the very last work to be done may be specified in the first section of the specification.

Where the work to be done consists in the alteration of an existing building it is often found to be best to write the specification in the order in which it is to be carried out, without close regard to confining the work of each trade in a separate water-tight compartment. In such cases I find that I am less likely to omit a necessary thing by following the sequence in which I know the work will be done, than when I follow the course more usual for new buildings; and contractors also find such a specification easier to follow.

In the following articles both the order of the work and the desirability of keeping trades separate will be borne in mind. It may be necessary to leave a particular trade occasionally and by-and-by return to it again; it is intended to describe the complete work of building the house shown just as if it were possible to take the student over the work day by day as the work of building may be supposed to proceed.



FRONT ELEVATION AND GROUND-FLOOR PLAN.

Setting Out.

The first thing to be done is to set out the house—that is, to mark upon the ground the lines of the walls so that excavation may be made for the "foundations." The word "foundation" is used in a double sense: it is sometimes used to mean the rock (using the word "rock" as geologists use it) on which the structure rests as "a hard foundation, a soft foundation," &c., and sometimes to mean the first courses of the walls (foundation courses). This confusion is natural, but deserves to be noticed. The wall to be built is of known material having known strength. It is to rest on the material of the site of the building; this in most cases is weaker than the wall, and the weight that the wall will safely carry must be distributed over an area of, say, "soil" much greater than the sectional area of the walls, which is done by spreading out the wall into footing courses. These footing courses may be looked upon as part of the structure of the building, or they may be

ken to be a strengthening of the site in pre-ration for the building. The preparation the site by piling and other means is work the same character, though perhaps one is sposed to think of the foundation courses part of the building and of work like ling as a preparation of the site.

It is not intended here to deal with the estions of difficult foundations, because ere was no difficulty in the case of the par-ular house which has been selected. The e was of granite rock, close to the surface, egular in shape, and made up to a surface ith soft boggy soil. It may be noted that ere is great danger in building on a site of is kind, if the walls are not everywhere rried down to the same hard rock. Settlement" is not so much to be feared as *equal* settlement. If one portion of a house ars on hard rock and another portion on ightly yielding material there will be acking, and possibly disaster. In the case efore us the soil was altogether cleared off ver the whole space shown on the plan, and a irregular surface of granite (quarry) was id bare, and on this surface the walls were rectly commenced.

The first course of stones was laid directly n the rock, with no bed of mortar: it is a ourse averaging 14in. deep, for outside walls ft. 6in. thick, stepped to suit the irregularity the rock surface. On this foundation ourse (footing course) the walls are com-enced of their proper thickness, leaving an fset of 6in. at each side, and they may be onceived as levelled up to a height suitable r the "damp-course." The question of a amp-course deserves consideration. In the se in question a damp-course is not re-uired; the site is compact granite rock; are was taken that no water could lodge in ; it was kept dry both by surrounding drains nd by having it so dressed that, if water did y accident reach it, it could escape, and ne absence of a mortar bed between the ooting course and the rock site interrupted ne conductivity between the ground and ne walls.

The object of a damp-course is to prevent oisture rising in the wall from the site in ne manner that oil rises in the wick of lamp from capillarity. If the site is aturally wet, whether the damp shows on ne walls or not the atmosphere of the house s maintained in a constantly "saturated" ondition, and moisture will condense on any rface which happens to be cooler than the tmosphere of the house at any time. A wall n good conducting contact with the ground s frequently cooler than the air of the house; nd in a house built on a damp site (country ouse) a good compact well-built wall, per-ectly dry when cut into and examined, may e an unmanageable wet wall on its surfaces. Even in fairly dry houses it will be observed hat after a hard frost, when the thaw comes, he walls are streaming with condensed wet rom the comparatively warm air in contact vith the walls, which maintain for some time he low temperature they attained during the rosty weather.

There is not so much trouble from damp-ess of site in town houses as in country ouses. It is of *comparatively* small import-nce that the walls of a dwelling-house shall ot show dampness; it is of the greatest ossible importance that the *air* of a house hall be dry. One may have a really dry ouse and at the same time have the appear-nce of wetness. Walls coated with a strong olution of common salt will keep wet; in old smoky houses walls which have become adly stained with soot will also keep wet even with dry air.

The greatest difficulty in the way of the rchitect of houses of the class here described s his trouble to convince the proprietor for whom he is working of the importance of his point. He does not like to bury money n a sheet of concrete covering the whole surface of the damp site, but this is the only effective way of ensuring wholesome dry air in the house. The architect is made to feel that his client wants the showiest and most ostentatious house that can be built for the money his client can afford to spend. Extravagant ideas are common as to what size and kind of house, say, £1,600 will build. I have before me a book which professes to give examples of £600 to £700 houses, but the designs illustrated would cost thousands to build properly. It is the duty of an architect to frankly advise his client and to give him a trustworthy estimate of the cost of the work.

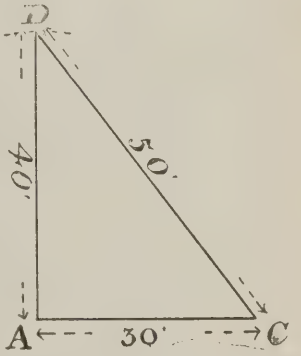
On damp sites it is as important that conductivity between the walls and ground is interrupted as that the course shall be impervious and that the course below the impervious course shall be a ventilating course. In my own practice when building brick houses I lay a course of bricks on a cement-mortar bed, and in the upright joints of this course I put no mortar of any kind. I cover the top of the course with anything that will prevent mortar falling down into the joints—thin felt—and I bed and joint the course over this, carefully filled, in cement-mortar. The empty joints may be lightly pointed on the face to prevent them becoming a harbour for small animals.

The house we are building is in masonry, granite, stones, and the mortar is of Portland cement and clean sharp sand. A civil engineer directed my attention the other day to the difficulty of bedding large-sized stones on a flat bed of cement-mortar (cement-mortar does not squeeze and flow with the weight of the stone); in one important work he found it useful to use a proportion of rich lime with the cement in the mortar to ensure that the bed joints would be everywhere filled. For work with moderate-sized stones this is not necessary. Both from consideration of this peculiarity of cement-mortar and also on account of the necessity of having a "body" of cement-mortar to have value from it, it cannot be too much insisted upon that cement-mortar joints should be reasonably thick. Any mason will tell us that he cannot mend a splintered stone with Portland cement; he does this kind of work with heated shellac, a viscous material. There is a wonderful vitality in old specification conditions, many of which are not attended to in practice, and we still find limitations to joint thickness which would make very bad work if carried out as specified.

The setting out of this house gives very little difficulty because the angles are all right angles. The porch front of the house runs nearly due east and west so that it faces the south. (It may be noted that on a sunny day the bearing of the sun at any time may be approximately determined by one's watch. Stand facing the sun, holding your watch level in front of you, get in line with the hour hand and the sun; in this position the meridian bisects the angle lying between the hour hand and a line from the centre of the dial to the XII figure.)

The position of the house is arrived at from considerations of the shape of the ground, shelter and view. The house is close to the sea; the sea is in front, not open sea, but with large island and distant mainland; the view to the east is of mountains ten or twelve miles away; to the west, about a mile off, there is a glimpse of a church tower, and the roofs of the houses of a seaside village, and the open sea spreads out beyond. The southern sun is very trying upon painted woodwork: the enclosed porch shown is necessary to make the house comfortable in rough weather; in fine weather the porch door is left open and the inner door is shaded.

The carriage-drive had to be surveyed, and there happens to be a dumpy-level on the ground. A few pegs are driven in convenient places having their heads level with the ground floor, so as to be useful to the masons. A line is stretched along the centre line of the east and west wall, and another at right angles to this, say, in the centre line of the outside wall facing east, and on these strings marks are put showing where the cross walls intersect. The lines of these walls are now given by pegs in the ground outside the site, and from these pegs the lines of the foundation courses are given. When the foundation courses are built the walls are set out with somewhat greater care upon them. Sometimes right angles are set out with a large wooden "square." This square should be laid tolerably level when it is used. When the centre lines are marked on the footing courses the diagonals of all rectangles should be "tried"; if the corners are "square" the diagonals should be exactly equal. A common tape-line is not accurate enough, used by itself, for setting out a house; either a steel tape or wooden measuring rods should be used. A right angle may be set out with a steel tape as follows:—From A measure AC = 30ft., put the ring of the tape on the pin at A and with 40ft. radius mark a small piece of circumference at D, then put the ring on a pin at C and with a radius of 50ft. find the point D; AD is at right angles to AC. Any multiples or submultiples of these lengths may be taken. It will be found that the methods of setting out points on paper on a drawing-board must be modified when extended to setting points on the ground. The point D above is found by the intersection of two circles, and this is manageable only with radii of moderate lengths. When a trustworthy instrument for measuring angles is available, points may most readily be found by measuring their ordinates from a base line. It is unnecessary to describe these here; they are to be found described in connection with surveying. The house we are concerned with may be set out by means of two light 10ft. rods (made by the carpenter), a stout line and a rough accurate square, also made by the carpenter;



a common tape-line will be found to be useful to give first rough dimensions, afterwards corrected by means of the measuring rods. Many years ago I became possessed of a good 6in. transit theodolite and a 12in. dumpy-level with compass About twelve years ago I bought a second-hand 5in. Y theodolite from the Ordnance Survey Department for £5. I find this instrument sufficiently accurate for general purposes; I rarely use the 12in. level, and I still more rarely use the transit theodolite. Architects should know enough of surveying and levelling to enable them to plan and set out carriage-drives and roads and garden walls, terraces, &c. They should know how to use Ordnance maps (their scales, &c.).

Later I may show the carriage-drive, the entrance from the public road and the modest gardens and grounds. No great care is needed to organise the small amount of excavation, distribution and filling concerned in this house; the stuff is simply filled into barrows and wheeled single stages to make up irregularities in the ground. The trenches for drains are formed by the stuff benig

thrown up to one side, and when the trench is refilled the surplus is used to level-up hollows. Any "soil" is put to one side; reserved for dressing the surfaces of fillings.

The floors of the porch, hall (ground-floor), passage, dairy, store, pantry, kitchen and scullery are to be tiled, and they have to be levelled-up from the rock with hard filling—spauls and refuse of mason's "stock" to form a foundation for the concrete and tiles. The fuel-house and small yard are to be surfaced with concrete, and these surfaces require also to be made up with hard material; the drains should be got in and carefully made up to before this filling is put in. Concreting and tiling should not be done till after the masonry and plastering are completed, and care should be taken that any drains thus put in are safe from injury from the rough traffic of attendants carrying large stones, &c., to masons and others.

It may be noted that the organisation of barrow roads into stages, the use of "horsing boxes" getting the stuff by picking and falling, the use of "stag filling," the duties of gangers, the uses of "leading barrows," hands for changing roads, renewal of broken barrows, &c., &c., in heavy earthworks rarely come into the work of an architect, but they are common in the practice of civil engineering. Often have I sat in a position from which I could see 500 men engaged on one large earthwork, and with my watch I have timed the different gangs and compared the work done on horse roads (railways), and barrow roads. The average number of shovels emptying gives the stream of stuff going out—a strikingly small stream. After regular observations of this kind I could go among the gangers and make such rearrangements as would make the output more regular and steady. This was my duty to my contractor-employer. Every man was paid in proportion to his work: when the leading man had his barrow filled all the men of the first half stage had to start with him whether their barrows were full or not; weak men succeeded weak men on the stages, and strong men wheeled further the barrows of strong men. Work of this kind will enter into the higher stages, South Kensington papers, where retaining walls, dam walls, bridges and other engineering buildings come within the syllabus.

(To be continued.)

LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.

Mr. Butler Wilson's Presidential Address.

THE opening general meeting of the Leeds and Yorkshire Architectural Society was held on Thursday evening last.

Mr. Butler Wilson, in his presidential address, spoke of the hindrances which interfered with the realisation of perfect planning. Architects often had to deal with a site which bristled with obstacles and restrictions, and in such a case it would be a fatal mistake to endeavour to place there a preconceived arrangement only suitable for some totally different situation. Rather should they endeavour to turn obstacles into advantages. Though they might have the desire to make themselves thoroughly acquainted with the needs of their client, those endeavours were often met by ill-concealed indifference—an indifference which often expressed itself in some such words as "get the building finished, and we will adapt it to our requirements." But that was entirely unsatisfactory. Architects must be determined to fulfil requirements in a far more complete way than their clients had ever imagined.

Modern Constructive Inventions.

Another difficulty was that of adapting the acknowledged forms of architecture to the ever-increasing advantage of modern constructive inventions. The fight between material and imagination did not decrease with the advance of time, and there was no doubt that many accepted forms were under certain modern conditions, far from applicable to functions which this age demanded. To grapple with those demands and at the same time preserve the essential qualities of their art was the task which lay before them. This could best be done, not by ignoring or rejecting inventions and appliances which, on the grounds of their practical utility, had come to stay, but by a frank acknowledgment and acceptance of their value, and a determination to make those inventions their servants rather than their masters. They must be ready to progress in that respect, and to seize upon all that was best in modern constructional methods, for there was no law born of past experience which might not be instantly repealed owing to the appearance of new conditions and materials.

If architecture as a fine art was to live it must adapt itself to present needs. Iron and steel had almost ousted carpentry from buildings of any size, and the arrival of the flanged beam and iron joist marked a great era. Steel, combining as it did the virtues of cast- and wrought-iron, could be utilised for supporting enormous loads. The idea that constructive metalwork needed concealing from view was rapidly dying out.

They were now able to build a partition 2½in. thick which local authorities recognised as a 9in. brick wall for fireproof purposes. Architects were, indeed, feeling the steady invasion of the technical constructor. Technical construction was advancing, and they must not allow the constructive specialist to gain an ascendancy.

The Commercial Invasion.

There was an invasion which, if it was allowed to continue, would end in disaster; an invasion of the domain of their art by a commercial element, coming forward and successfully luring members of their brethren to relinquish their hold upon the æsthetic side of architecture. The busy practitioner was tempted by the readiness of the trade to relieve him of the arduous work of design. The tempting words, "designs furnished free," were constantly meeting his eye; and the offers were made by the terra-cotta manufacturer, the cabinet-maker, the mosaic worker, the glass-stainer and the ornamental plasterer. He counselled that on no account should architects accept such offers; any such acceptance would disgrace their profession. They could design for themselves.

Having spoken of the approaching invasion of their art and the difficulties which beset the enthusiast, he pointed out the means by which the invasion might best be resisted and the difficulties be overcome.

A Leeds School of Architecture.

Last July the Council decided to take steps to found a School of Architecture to afford facilities to associates for the study of architecture. In casting about, the Leeds Institute was approached, and the response was most encouraging. The Committee of the Institute signified their willingness to co-operate with the Society to the extent of accepting various proposals. A room was to be set apart for the sole use of the students of the school; the matter was to be nominated by the Council of the Society; a representative of the Council was to have a seat on the Committee of the Institute; members of the Council were to be received as visitors to the classes, and prizes and studentships offered by the Society were to be competed for by associate students. By those arrangements they had at least achieved that which was the nearest approximation to the spirit of the decision of last July; and it was extremely gratifying that, when the new buildings in Cookridge Street were completed, there would exist in the city of Leeds a School of Architecture which should justify its title.

Mr. R. Wood moved a vote of thanks to the president for his address. This was seconded by Mr. E. H. Hepper, representing the Leeds Institute, who stated that there were already eighteen students in the new architectural class connected with the Institute.

Prizes were distributed to the successful students in the competitions for measured designs, sketches, &c., and the proceedings closed with a smoking concert.

A.A. OF IRELAND.

A NORMANDY TOUR.

MR. C. J. M'CARTHY, city architect of Dublin, delivered a lecture on "Three weeks in Normandy" before the Architectural Association of Ireland last week. The principal places visited were Mount St. Michael, Coutances, St. Lo, Bayeux, Caen, Caudebec, Rouen, Evreux, Lisieux and Vire. Victor Hugo had said that Mount St. Michael was to France what the Pyramids were to Egypt, and another French writer had described it as the eighth wonder of the world. Words, however, were powerless to describe this quaint mediæval town, for it was a town as well as a fortress and a monastery. The lecturer gave a most interesting sketch of this ancient place, and of the many legends that cling around it from the time of St. Aubert, who in the eighth century established a monastery there, when the place received the name of Mount St. Michael. About 250 years later, St. Aubert's monks were replaced by the Benedictines, but the present monastery buildings were not begun until 1017. They were carried on almost continuously until about the middle of the thirteenth century, and meanwhile the construction of the ramparts and fortifications had also been in progress. Its history was full of vicissitudes, but the monks were finally expelled after the Revolution, when the Mount was converted into a prison, and given the strangely incongruous name of "Mont de Liberté."

The cathedrals of Coutances and St. Lo were among the finest specimens of Gothic architecture in Normandy, if not in France, and in addition to them, both cities were fortunate in the possession of many other architectural monuments. The old houses, dating from the fourteenth and fifteenth centuries, were more than usually interesting. Several views of these were shown on the screen, including two from water-colours by Mr. F. G. Hicks, the president of the Society.

Everybody knew Caen. It had been for years and years the happy hunting-ground of the Gothic architect, and the venerable old town still preserved much of its beauty and dignity. Taken all round, Caen was, from the point of view of the architect, the most delightful town in Normandy, and its history was no less interesting than its architecture. It had been the favourite dwelling-place of William the Conqueror, the capital of his dominions, and his last resting-place. William, observed the lecturer, was said to have founded no fewer than twenty-three convents and monasteries, but the buildings with which his name was most closely associated were the Abbaye Aux Hommes and the Abbaye Aux Dames, which were both begun about the year 1066, the year of the Conquest of England, as a compromise with Rome.

After making reference to the beauties of Rouen, the lecturer passed to the cathedrals of Evreux and Lisieux, which he described at length and illustrated by many slides. The streets of Caudebec, he said, rivalled

those of Caen in picturesqueness, and the Church of Notre Dame was a magnificent example of the late French Gothic. Vire, the last town visited, was another interesting survival of mediæval times: a considerable portion of the ancient walls still remained, and the belfry over one of the gates was considered one of the finest in France.

Compulsory Examinations.

Previous to the reading of Mr. M'Carthy's paper at the general meeting of the Association the following report of the sub-committee, which had been adopted by the general committee, was adopted after discussion:—

"This sub-committee is of opinion that the experience derived in the working of the classes during the past few years has made it clear that, in the interests of architectural education in Ireland, it is essential that some decisive step be taken to stimulate the efforts of students. The sub-committee cannot help feeling that purely voluntary study, without definite aim, has little tangible result. The Association, being a junior and teaching body, cannot directly deal with the matter, but it is suggested that the Royal Institute of Architects of Ireland be asked to inaugurate compulsory examination as a condition precedent to membership. The sub-committee cannot but think that the present method of admission—without examination—to the ranks of the Institute is not conducive to the best interests of the profession."

Keystones.

A Technical Institute at Tunbridge Wells has been erected at a cost of £16,000.

Mr. Hugh Stannus, F.R.I.B.A., is going out with Prof. Flinders Petrie, for the Egypt Exploration Fund, to trace the history of the Osiris Temple.

The Alhambra in Granada is threatened with danger. A powder factory is in the near neighbourhood of the building. The news has caused great uneasiness, and several deputies will press in the Spanish Chamber for the removal of the powder depôts.

A Memorial has just been placed in the chancel of Over Stowey Parish Church. It consists of a large bronze, resting on a slab of mottled and highly-polished Devonshire marble. It has been carried out in the studios of Messrs. Harry Hems & Sons, of Exeter.

Swaffham Prior Church.—The Church of St. Mary, Swaffham Prior, after having been closed to divine service for over a century, was recently reopened. The restoration of this fifteenth-century church, the tower of which is a beautiful specimen of Norman architecture, having been originally built in the twelfth century, has been carried out under the direction of Sir Arthur Blomfield & Sons. The tower and steeple still remain in their ruined state, but are to be restored. The work was commenced twenty-four years ago.

University College is proposed to be incorporated in the University of London. For the purposes of incorporation a sum of £92,000 has already been subscribed. A further sum of £108,000 still remains to be raised in order to place the Medical School of University College on a proper footing and to transfer University College School to a more suitable quarter of London. This sum includes the estimated cost of a new site for the School of Advanced Medical Studies, which it is found desirable to provide in order to avoid encroaching on the ground it is proposed to place at the disposal of the University for the further extension of University buildings. Subscriptions should be sent addressed to Sir Richard Farrant (University College, London, Gower Street, W.C.).

The Bells of the Parish Church of St. Paul, Wooburn, Bucks, were recently dedicated on being rehung in a renovated belfry. One of them was badly cracked and had to be recast.

The Victoria and Albert Museum.—There being no clock in a prominent position on any public building between West Kensington and Hyde Park Corner, Sir M. M. Bhownaggree has suggested to the Office of Works that the erection of the new buildings of the Victoria and Albert Museum at South Kensington might be utilised for remedying the defect. Lord Windsor, in reply, states that the matter is under consideration, and it is hoped that the suggestion will be adopted.

Architects Practising in Natal. — We are informed that the names of all architects at present practising in Natal may be obtained by procuring the current issue of the "Natal Almanac, Directory and Yearly Register," a weighty volume published by P. Davis & Son, Pietermaritzburg. It also contains annually all possible information relative to "the garden colony." The book may be obtained from several agents in London, Messrs. Street & Co., 30, Cornhill, E.C.—to wit—amongst others.

Children's Homes, Sidcup.—In 1899 a site of 62 acres, with a substantial old residence at Halfway Street, Sidcup, was acquired by the Greenwich Board of Guardians. School homes on the cottage principle, as opposed to the old barrack construction, have been erected by the guardians for 525 children, from the designs of Messrs. Thomas Dinwiddy & Sons, of Greenwich and London. A portion only of the site has been used; upwards of 20 acres being in reserve for ultimate building development. The buildings, which are of considerable extent, comprise twenty-four different blocks, including swimming bath, gymnasium, &c. The contractor was Mr. T. Rowbotham, of Birmingham.

Architects' Claim for Additional Fees.—At last week's meeting of the Metropolitan Asylums Board the Works Committee reported that Messrs. Treadwell & Martin, the architects of the Southern Hospital, had appealed for some remuneration in addition to the agreed fee of £5,000 for preparing plans and specification and supervising the erection of the hospital, "in consequence of the extraordinary delay and the additional work entailed by the requisitions of the Local Government Board." The Committee unreservedly endorsed the architects' appeal, and recommended that an additional fee of £500 should be awarded. Two members strongly objected to the proposal, but they found no supporters, and the committee's recommendation was adopted.

The Arts and Crafts Society has wisely modified that inconvenient rule which at its last triennial exhibition forbade altogether the photographing or sketching of anything shown in its galleries. In the forthcoming exhibition at the New Gallery photographs or sketches may be taken, subject to the production of the written consent of the designer or owner of the copyright, countersigned by the president or secretary. Contributions to the exhibition must consist of "contemporary original work," but the Society attaches a wide meaning to "contemporary," which in their view includes anything designed or executed within the past twenty years. Intending exhibitors should apply for the necessary labels to Mr. E. S. Prior, hon. secretary, at 3, Old Serjeants' Inn, Chancery Lane, and their works must be submitted to the Selecting and Hanging Committees at the New Gallery on December 29th, 30th or 31st. A commission of 5 per cent. will be charged on all sales made at the Arts and Crafts.

A new Mission Hall at Bredfield has been erected at a cost of about £200. It seats about 120 persons, and is of red bricks and tiles. The work has been carried out by Messrs. Barrell & Smith, of Woodbridge.

A New Victoria Hall at Deptford is being erected. Mr. J. Weir, F.R.I.B.A., is the architect. The central hall, which will be used for services, lectures, &c., is 100ft. by 75ft. There is no basement.

Another South African Memorial.—A memorial will shortly be erected within the precincts of Guy's Hospital to the memory of those Guy's men whose lives were lost in the service of their country during the South African war. The memorial will take the form of a drinking fountain to be placed in the colonnade, and a suitable design by Mr. Frederick Wheeler, F.R.I.B.A., has been selected.

The Lord Lieutenant of Ireland was waited upon recently by a deputation from the Council of the Royal Institute of Architects of Ireland, who presented an address of welcome. Lord Dudley, in reply, said Ireland could supply in great profusion and variety the raw materials of the architect's craft, and he was glad the efforts were recognized of the Department of Agriculture and Technical Instruction, to promote the prosperity and develop the resources of the country.

The Parish Church of St. John's, Hoxton, which has been closed for restoration and decoration during the past three months, has been reopened. The walls and galleries are of a terra-cotta colour relieved with gold, while the ceiling has a blue background and is divided into compartments containing pictures of angels and other figures. The church is lighted by electric light. The decoration has been carried out by Messrs. Campbell Smith & Co., under the supervision of Mr. Reeves, architect, the expense incurred being £4,000.

Architect, Builder and Guardian.—Members of the Okehampton Board of Guardians propose to present Mr. R. Brealy, one of their colleagues, with a testimonial in recognition of the time, ability and energy he has devoted to the enlargement and improvement of the workhouse buildings. As chairman of the House Committee Mr. Brealy has taken upon himself the duties of architect, clerk of the works and builder in connection with the modernising of the workhouse, and the success of his labour has been so marked as to earn the highest praise from Mr. Preston Thomas, the Poor Law inspector.

The new Barracks at Winchester, which are being erected on the site of the old buildings, or "King's House," as it used to be called, destroyed by fire in December 1894, are rapidly approaching completion, and will be ready for occupation in the course of a month or two. The principal block, which is practically finished, is 480ft. in length, consists of four floors, and is intended to accommodate about 440 men. Another smaller block, 170ft. long, provides accommodation for about 280 men, and there is a third building for a limited number of recruits.

"The House of the Seven Gables."—A cousin of the late Nathaniel Hawthorne who lives in Salem says there never was such a house in that town. He tells the "Boston Journal" that "Hawthorne came down to visit me shortly before his death, and we rambled about the old haunts of his early days. I was particular to ask him to point out, if he could, the famous House of the Seven Gables, because at that time the controversy existed in some degree. 'There never was any,' was his immediate reply to me. 'I never had any particular house in my mind when I wrote the story. It was just a fancy of my own.'"

Complete List of Contracts Open.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDERS MAY BE OBTAINED.
	BUILDING:		
Nov. 13	West Green, Crawley—Alterations, &c., to House		W. Buck, Architect, Horsham.
,, 13	Hampstead, N.W.—Stabling, Boundary Wall, &c.	Borough Council	O. E Winter, Borough Engineer, Town Hall, Haverstock Hill, N.W.
,, 13	Parkestone, Essex—Schools, &c.	Ramsey School Board	J. W. Start, Architect, Colchester.
,, 13	Aberdare - School Extensions	School Board	J. Morris, Clerk, Town Hall, Aberdare.
,, 13	Welshpool—Workshop		F. D. Ward, 38 High Street, Welshpool.
,, 13	Belan—Addition to School		F. D. Ward, 38 High Street, Welshpool.
,, 14	Preston—Extension to Offices	Corporation	Borough Surveyor, Town Hall, Preston.
,, 15	Bromsgrove, Worcs—Lunatic Asylum	County Council	R. J. Oliver, Clerk, Shirehall, Worcester.
,, 15	Birmingham—Sanitary Projections to School	Aston Union Guardians	C. Whitwell, 23 Temple Row, Birmingham.
,, 15	Braintree, Essex—Master's Quarters, &c.	Union Guardians	F. Smoothy, 1 New Street, Braintree.
,, 15	Bradford - Baths	Corporation	F. E. P. Edwards, City Architect, Chapel Lane, Bradford.
,, 15	Llantwit Vardre, Wales—Thirty Houses		A. Bryant, Architect, Midland Bank Buildings, Pontypridd.
,, 15	Londonderry—Shirt Factory	Linster Brothers & Co.	J. M. C. Knox, 2 East Wall, Londonderry.
,, 17	Gortin, co. Tyrone—Presbytery		E. J. Toye, Architect, Ulster Bldgs., Waterloo Place, Londonderry.
,, 17	Kingston-on-Thames—Two External Iron Staircases	Union Guardians	W. H. Hope, Architect, Hampton Wick, Middlesex.
,, 17	Stockton-on-Tees—Bridge Works	Haverton Hill Road Committee	M. H. Sykes, Borough Engineer, Stockton-on-Tees.
,, 17	Tynan, Ireland—Three Two-storey Cottages	Gt. Northern Ry. Co. (Ireland)	Company's Engineer-in-Chief, Amiens Street Terminus, Dublin.
,, 17	Monaghan, Ireland—Fourteen Labourers' Cottages	Rural District Council	W. M'Mahon, Engineer, Clones.
,, 17	Middlesbrough—Extension of Sanatorium	Corporation	F. Baker, Borough Engineer, Municipal Buildings, Middlesbrough.
,, 17	Rhyl, Wales—Bricks, &c.	Urban District Council	L. G. Hall, Engineer, Paradise Street, Rhyl.
,, 17	Birmingham - Bricks, Lime, Cement, &c.	Water Committee	E. A. Lees, 44 Broad Street, Birmingham.
,, 17	Ballybeg, Ireland - Station Building	Gt. Northern Ry. Co. (Ireland)	Company's Engineer-in-Chief, Amiens Street Terminus, Dublin.
,, 17	Bootle, Lancs—Cart Sheds, &c.	Corporation	Borough Engineer, Bootle.
,, 17	Derby—Alterations, &c., to School	School Board	F. S. Antliff, Architect, Draycott, Derby.
,, 17	London, W.—Convenience	Paddington Borough Council	E. B. Newton, Borough Surveyor, Town Hall, Paddington, W.
,, 17	Croydon—Two Cottages, &c.	Borough Council	Borough Engineer, Town Hall, Croydon.
,, 17	Chelmsford—Cottage Homes	Union Guardians	Chancellor & Son, Architects, Chelmsford.
,, 18	Sheffield—Shed for Storage of Lime, &c.	Health Committee	C. F. Wike, City Surveyor, Town Hall, Sheffield.
,, 18	Dartford—Additions to School	School Board	H. Hall, 19 Doughty Street, London, W.C.
,, 18	Swindon—School	School Board	W. Seaton, Clerk, Town Hall, Swindon.
,, 19	Llandudno—Cement	Urban District Council	E. P. Stephenson, Council's Engineer, Town Hall, Llandudno.
,, 19	Hull—Alterations, &c., to Station	North Eastern Railway Co.	W. Bell, Company's Architect, York.
,, 19	Dartford—Home for Female Attendants	Metropolitan Asylums Board	Newman & Newman, 31 Tooley Street, London Bridge, S.E.
,, 19	Bristol - Homes, with Hall, &c.	Guardians	J. J. Simpson, Clerk, St. Peter's Hospital, Bristol.
,, 20	Nottingham - Station Buildings	Midland Railway Co.	Engineer, 22 Park Road, Nottingham.
,, 20	Witton, Birmingham—Bricks, Lime, Cement, &c.	Kynoch, Ltd.	F. Huxham, Secretary, Lion Works, Witton, Birmingham.
,, 21	Greenock—Residence	Admiralty	Director of Works Department, Admiralty, Avenue House, 21 Northumberland Avenue, W.C.
,, 21	Londonderry—Buildings at Asylum	Committee of Management	M. A. Robinson, Architect, Richmond Street, Londonderry.
,, 21	Grove Point, Portland—Coastguard Buildings	Admiralty	Director of Works Department, Admiralty, Northumberland Avenue, W.C.
,, 22	Crowan, Camborne—Addition to School	School Board	E. C. Harvey, Leedstown.
,, 22	Pontypridd—Generating Station, Car Sheds and Offices	Urban District Council	R. P. Wilson 66 Victoria Street. Westminster.
,, 24	Hanwell, W.—Alterations, &c., to Schools	School Board	W. Pywell, Architect, Cumberland House, Hanwell, W.
,, 26	Swansea—School	School Board	A. W. Halden, Clerk, School Bd. Offices, Dynevor Place, Swansea.
,, 27	Bishop Auckland—Minister's House		T. Deadman, 2 Croft Terrace, Coundon.
Dec. 1	Didcot—Alterations and Additions to School	School Board	Hoare & Wheeler, 7 Friar Street, Reading.
	ENGINEERING:		
Nov. 13	Chelmsford—Gas Engine	Rural District Council	J. Dewhirst, Engineer, Avenue Chambers, Chelmsford.
,, 14	Tenby—Steam Roller and Scarifier	Town Council	H. B. Crossley, Borough Engineer, Tenby.
,, 14	St. Petersburg—Electric Traction on Tram Lines	Stadt Amt (Town Council)	Stadt Amt, St. Petersburg, Russia.
,, 14	Leeds—Aqueduct Tunnel	Corporation	City Engineer, Leeds.
,, 14	Bristol—Arc Cables	Electrical Committee	H. F. Proctor, City Electrical Engineer, Temple Back, Bristol.
,, 14	Radcliffe, Lancs—Electrical Plant	Urban District Council	J. Sharples, Clerk, Council Offices, Radcliffe.
,, 15	Harrogate Tunnel	Corporation	E. W. Dixon, 14 Albert Street, Harrogate.
,, 15	Bradford—Heating at Baths	Corporation	F. E. P. Edwards, City Architect, Chapel Lane, Bradford.
,, 15	Harrogate—Stone Breaker	Corporation	E. W. Dixon, 14 Albert Street, Harrogate.
,, 15	London, W.—Boiler		G. G. Bell, 57 Fulham Palace Road, Hammersmith, W.
,, 15	Manchester—Span-Wire Brackets	Tramways Committee	J. M. M'Elroy, 55 Piccadilly, Manchester.
,, 17	Kirkcaldy—Rebuilding Quay Wall	Harbour Commissioners	R. Henderson, 20 High Street, Burntisland.
,, 17	Penrith—Reservoir, &c.	Rural District Council	J. Graham, Engineer, Bank Street, Carlisle.
,, 17	Newry, &c., Ireland—Reconstructing Bridges	Gt. Northern Rly. Co. (Ireland)	Company's Engineer-in-Chief, Amiens Street Terminus, Dublin.
,, 17	Watchet, Somerset—Harbour Works	Urban District Council	W. T. Douglass, 15 Victoria Street, Westminster.
,, 18	London, S.E.—Laying Electric Tramways	London County Council	Engineer's Department, County Hall, Spring Gardens, S.W.
,, 18	London, S.E.—Electric Crane	London County Council	County Hall, Spring Gardens, S.W.
,, 18	Manchester—Widening Railway	Lancs and Yorks Rly. Co.	Engineer, Hunt's Bank, Manchester.
,, 18	London, S.E.—Carts, &c.	Lewisham Borough Council	Surveyor, Town Hall, Catford.
,, 18	London, E.C—Carriages	Bengal-Nagpur Rly. Co., Ltd.	Secretary, 132 Gresham House, Old Broad Street, E.C.
,, 19	Conway—Bridge Works	Conway Bridge Commissioners	J. J. Webster, 39 Victoria Street, Westminster.
,, 19	Pemberton, Lancs—Reconstructing Tramway	Urban District Council	Heaton, Ralph & Heaton, Victoria Buildings, King St., Wigan.
,, 19	Southampton—Steel Superstructure of 3 Bridges, &c.	County Council	W. J. Taylor, County Surveyor, The Castle, Winchester.
,, 19	Enniscorthy, Ireland—Fuel Economiser		Resident Medical Superintendent, District Asylum, Enniscorthy.
,, 20	Southend-on-Sea—Sea Walls, &c	Corporation	Borough Engineer, Municipal Offices, Southend.
,, 22	Aspatria, Cumberland—Waterworks	Joint Water Board	Pickering & Compton, 11 Lowther Street, Whitehaven.
,, 22	Perth, Western Australia - Rubbish Destructor	City Council	Agent-General for Western Australia, 15 Victoria St., Westminster.
,, 22	Pontypridd—Tramways	Urban District Council	R. P. Wilson, 66 Victoria Street, Westminster.
,, 23	Coventry - Gasholder Tanks	Gas Committee	F. W. Stevenson, Engineer, Gasworks, Coventry.
,, 24	Leeds—Retort Installation	Gas Committee	R. H. Townsley, General Manager, Gas Offices, Leeds.
,, 25	Irvine - Reservoir, &c.	Corporation	J. & A. Leslie & Reid, 72A George Street, Edinburgh.
,, 26	Lowestoft—Tramways	Corporation	R. B. Nicholson, Town Clerk, Lowestoft.
,, 28	Crajora - Water Supply		W. H. Lindley, Frankfort-on-Maine, Germany.
,, 28	Sunderland—Electric Plant	Corporation	J. F. C. Snell, Town Hall, Sunderland.
,, 28	Burton-on-Trent—Inclined Retort Plant	Corporation	F. L. Ramsden, Manager, Gas & Electricity Light Works, Burton upon-Trent.
,, 29	Manchester—Reconstruction of Bridge		City Surveyor, Town Hall, Manchester.
,, 30	Shanghai—Electric Lighting	British Municipal Councils	Office of the Board of Trade, 50 Parliament Street, S.W.
Dec. 1	Dumfries, Scotland—Electric Lighting	Town Council	J. Grierson, Town Clerk, Dumfries.
,, 1	Plymouth—Sewerage Works	Corporation	J. Mansergh & Sons, 5 Victoria Street, Westminster.
,, 2	Adelaide, South Australia—Harbour		Agent-General for South Australia, 1 Crosby Square, London.
,, 10	Harwich—Dredging Harbour	Harbour Conservancy Board	T. Miller, 9 Thoroughfare, Ipswich.
,, 13	Madrid—Canal Reservoir		Office of the Ministry of Agriculture, Commerce and Public Works, Madrid.
,, 20	Alexandria, Egypt—Steamer		Inspector of Irrigation, Third Circle, Alexandria.
	FURNITURE:		
Nov. 14	Wimbledon—Furniture	Public Library Committee	H. W. Bull, Librarian, Public Library, Hill Road, Wimbledon.
,, 14	Downpatrick, Ireland—30 Bedsteads	Lunatic Asylum Committee	Resident Medical Superintendent, Lunatic Asylum, Downpatrick.
,, 18	Swindon - Furniture	Union Guardians	J. P. Kirby, 8 Victoria Street, Swindon.
,, 29	Newcastle-on-Tyne—Furniture, &c., at Police Station	Watch Committee	Chief Constable, Pilgrim Street, Newcastle.
	IRON AND STEEL:		
Nov. 14	Swindon—Fence		Borough Surveyor, Town Hall, Swindon.
,, 14	Valetta, Malta—Pipes, &c.		Crown Agents for the Colonies, Downing Street, London.
,, 14	Shawford, Hants—Fencing	Southampton Corporation	W. Matthews, 18 & 19 French Street, Southampton.
,, 15	Manchester—Cast-iron Kerbs	Tramways Company	J. M. M'Elroy, 55 Piccadilly, Manchester.
,, 17	Birmingham—Stores	Water Committee	E. A. Lees, 44 Broad Street, Birmingham.
,, 17	Bristol—Castings, Ironmongery, &c.	Sanitary & Improvement Comm.	T. H. Yabbicom, 61 Queen Square, Bristol.
,, 18	London, S.E.—Iron Fencing	Lewisham Borough Council	E. Wright, Town Clerk, Town Hall, Catford, S.E.
,, 18	London, E.C.—Rails, Fishplates, &c.	Southern Mahratta Rly. Co., Ltd.	E. Z. Thornton, 46 Queen Anne's Gate, Westminster S.W.
,, 19	Hull—Iron and Steel Work for Station	North-Eastern Railway Co.	W. Bell, Company's Architect, York.
,, 20	Witton, Birmingham—Stores	Kynoch, Ltd.	F. Huscham, Secretary, Lion Works, Witton, Birmingham.
,, 20	Dublin—Iron Castings, Ironmongery, &c.	Commissioners of Irish Lights	O. Armstrong, Secretary, Irish Lights Office, D'Olier Street, Dublin.
,, 23	Coventry—Ironwork for Gasholder Tanks	Gas Committee	F. W. Stevenson, Engineer, Gasworks, Coventry.

Complete List of Contracts Open.—*continued.*

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDERS MAY BE OBTAINED.
	PAINTING AND PLUMBING:		
Nov. 17	Birmingham—Lead Piping, Paints, Oils, &c.	Water Committee	E. A. Lees, 44 Broad Street, Birmingham.
,, 17	Bristol—Oils, Paints, Brushes, &c.	Sanitary and Improvement Committee.	T. H. Yabbicom, 63 Queen Square, Bristol.
,, 17	Glasgow—Paints, &c.	Corporation	J. Young, 88 Renfield Street, Glasgow.
,, 20	Dublin—Coppersmith and Plumbing Work, Brushes, &c.	Commissioners of Irish Lights	O. Armstrong, Secretary, Irish Lights Office, D'Olier Street, Dublin.
,, 20	Witton, Birmingham—Putty, Red Lead, White Lead, Oils, &c.	Kynoch, Ltd.	F. Huxham, Secretary, Lion Works, Witton, Birmingham.
,, 24	Belfast—Plumbing Works, &c.	Lunatic Asylum Committee	Graeme-Watt & Tulloch, 77A Victoria Street, Belfast.
,, 26	Dublin—Brushes, Varnishes, &c.	Gt. Southern and Western Railway (Ireland).	Company's Storekeeper, General Stores, Inchicore, Dublin.
,, 28	Warrington—White Lead, Oils, &c.	Cheshire Lines Committee	S. S. Barton, Storekeeper, Cheshire Lines, Warrington.
	ROADS AND CARTAGE:		
Nov. 14	Omagh, Ireland—Road Maintenance	Rural District Council	W. Cathcart, Clerk, Board-room, Workhouse, Omagh.
,, 15	Halkirk—Repairing Roads and Bridge	Parish Council	H. J. Mackay, Clerk, Council Office, Halkirk.
,, 17	Newhaven—Granite	Urban District Council	E. Knightley, Clerk, Council Offices, Newhaven.
,, 17	Swindon—Traction Wagon	———	Borough Surveyor, Town Hall, Swindon.
,, 18	Wealdstone, Middlesex—Granite	Urban District Council	F. Hill-Parr, Surveyor, Wealdstone.
,, 18	Wealdstone, Middlesex—Road Works	Urban District Council	F. Hill-Parr, Surveyor, Wealdstone.
,, 19	Eastleigh, Hants Road Improvement Works	Southampton County Council	W. J. Taylor, County Surveyor, The Castle, Winchester.
,, 19	Southampton—Road	County Council	W. J. Taylor, County Surveyor, The Castle, Winchester.
,, 19	Croydon, Making-up, &c.	Rural District Council	R. M. Chart, Surveyor, Town Hall, Croydon.
,, 24	Middlesbrough—Flags and Kerbs	Corporation	Borough Engineer, Municipal Buildings, Middlesbrough.
,, 24	Bangor, Ireland—Road, &c.	Highways and Sanitary Committees.	J. Gill, Borough Surveyor, Bangor.
	SANITARY:		
Nov. 13	Keighley—Sewer	———	W. H. Hopkinson, Borough Engineer, Keighley.
,, 17	Amersham, Bucks—Sewers, &c.	Rural District Council	J. Taylor, Sons & S. Crimp, 27 Great George Street, Westminster.
,, 18	Ilfracombe, Devon—Sewage Outfalls, &c.	Urban District Council	Engineer, Town Hall, Ilfracombe.
,, 18	Hemsworth—Sewer, &c.	Rural District Council	T. H. Richardson, Surveyor, Hemsworth.
,, 18	London, E.C.—Repairing Sewer	Corporation	Engineer, Guildhall, E.C.
,, 18	Windygates and Balcurvie—Sewerage Works	Fife County Council	W. D. Sang, Engineer, Kirkcaldy.
,, 22	Kirkcaldy, Scotland—Sewerage Works	Fife County Council	W. D. Sang, Engineer, Kirkcaldy.
,, 24	Stapleford—Scavenging	Rural District Council	F. W. Fox, Clerk, Bank Chambers, Beastmarket Hill, Nottingham.
,, 24	Lewes—Sewer	Town Council	Borough Surveyor, Town Hall, Lewes.
,, 28	Warrington—Drain Pipes, &c.	Cheshire Lines Committee	S. S. Barton, Storekeeper, Cheshire Lines, Warrington.
Dec. 1	Plymouth—Sewers, &c.	Corporation	J. Mansergh & Sons, 5 Victoria Street, Westminster.
,, 1	Plymouth—Sewerage Works	Corporation	J. Mansergh & Sons, 5 Victoria Street, Westminster.
,, 15	Monte Video—Sanitary Works	Government of Uruguay	Uruguay Legation, London.
	TIMBER:		
Nov. 17	Croydon—Oak Park Fencing	Borough Council	Borough Engineer, Town Hall, Croydon.
,, 20	Witton, Birmingham—Timber	Kynoch, Ltd.	F. Huxham, Secretary, Lion Works, Witton, Balham.
,, 20	Dublin—Timber	Commissioners of Irish Lights	O. Armstrong, Secretary, Irish Lights Office, D'Olier Street, Dublin.
,, 28	Warrington—Timber, Sleepers	Cheshire Lines Committee	S. S. Barton, Storekeeper, Cheshire Lines, Warrington.

List of Competitions Open.

DATE OF DELIVERY.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Nov. 29	Ramsgate—Technical Schools and Free Library	£50, £25, £15.	T. G. Taylor, Borough Surveyor, Albion House Ramsgate.
Dec. 1	Arundel, Sussex—Laying-out Land	£50, £20.	A. Holmes, Town Clerk, Arundel.
,, 1	Chadderton—Free Library	———	G. Taylor, Clerk to U.D.C., Town Hall, Chadderton.
,, 2	Holyhead—Schools and Teacher's House		R. E. Pritchard, Clerk to School Board, Holyhead.
,, 12	Eccles Laying-out Area for Workmen's Dwellings	£50, £30, £15.	W. H. Hickson, Town Clerk, Town Hall, Eccles.
,, 18	Durban, Natal—Town Hall, Library, Museum, &c.	£500, £300, £200.	W. H. Radford, Albion Chambers, King Street, Nottingham.
,, 31	Ashton-in-Makerfield—Infectious Diseases Hospital	Urban District Council	T. Burgess, Surveyor, Council Offices, Ashton-in-Makerfield.
Jan. 31	Cape Town—University Buildings	£400, £200, £100.	Agent-General for the Cape of Good Hope, London.
,, 31	Hull—Town Hall Extension	£300, £200, £100.	E. Laverack, Town Clerk, Town Hall, Hull.
Feb. 13	Patras, Greece—Church	£400, £160, £80.	Committee for new Church of St. Andrew, Patras, Greece.
No date.	Wavertree—Church	£50.	E. Rogers, Crossley Buildings, South Castle Street, Liverpool.

Masters and Men.

Joiners' Wages on the North-East Coast.—At Newcastle, on Saturday, the voting returns from the joiners of the North-East Circuit were received. There was a large majority against the employers' proposals, who asked the men to resume work immediately at 1s. a week reduction, the other 6d. to be submitted to arbitration. The men had previously offered to accept 6d. a week reduction, which the employers refused to accept. The employers originally asked for a reduction of 1s. 6d. weekly.

Burton-on-Trent Masons.—At the beginning of July in the present year the operative stonemasons at Burton-on-Trent came out on strike for an advance of one penny per hour on the current rate of wages and certain alterations in the working rules. After refusing to listen to the employers' offer to submit the points at issue to the executive of the Midland centre of the National Federation of Building Trade Employers and the executive of the Friendly Society of Operative Masons for settlement, or to arbitration through the Board of Trade under the Conciliation Act, 1896, the men remained on strike for two months. Ultimately they accepted the latter proposition, and returned to work at the beginning of September, the employers agreeing to pay the men any advance that might be awarded from the time that they resumed work. Application was made to the Board of Trade to appoint an arbitrator, and on October 18th his Honour Judge Austin, of the Bristol County Court, sat in this capacity at Burton-on-Trent. His Honour has now given his award. He failed to find that the operatives had made out their case for an advance in wages, but several alterations of a minor character have been made in the working rules. The award is binding on both sides till July, 1905.

Surveying & Sanitation.

Trees for London Streets.—Several of the trees recently planted in Southwark streets by order of the borough council having died off, and the council has decided to have them replaced. Stepney is taking similar action, and intends to spend £250 a year on street arboriculture.

Steel Street Tracks are being experimentally built in New York. The streets are not paved with steel from kerb to kerb, but are merely provided with continuous steel tracks which truck wheels can follow. These steel tracks will be about 1ft. wide, and set at a standard gauge, and heavy wagons will follow them up and down the streets as they do now the tramway lines. The great advantage will be in avoiding sudden interruption of traffic, as the tramway cars are constantly forcing the heavy trucks back and forth from the tracks, and the loss in time is enormous. The amount of steel required to form such tracks averages about seventy-five tons to the mile. This includes bolts and splices and all other articles required. It is believed that a steel road would cost no more on the average than stone roads, while it is stated that the repairs would be far less and the durability nearly twice as long.

Change of Address.—The editorial and publishing offices of the "Local Government Journal" have been removed from 2, Dorset Street, Fleet Street, to the first floor, at 27A, Farringdon Street, London, E.C., opposite Stonecutter Street.

New Patents.

These patents are open to opposition until December 15th.

1901.—Refuse Destructors.—13,736. G. WATSON, 5, Greek Street, Leeds. The charging opening is covered by a liquid-sealed lid that runs on rails. The mouth is thus made perfectly smoke-tight.

Cloisonné Mosaic and Glass.—21,331. T. PFISTER, 76, Newman Street, London, W. The foundation-plate is covered with a layer of wax or gelatine, and strips of paper are stood end up in it in the required designs. The cells thus formed are filled with glass tesseræ or other suitable material, after which the paper strips are removed and their spaces filled with glass powder. By these means the cost of manufacture is reduced.

Kilns.—24,247. H. CLIFFORD, Glascote, Tamworth, Warcs. A series of round kilns are connected with each other by dampered flues, and also with a main uptake shaft. An improved system of firing is introduced which enables slack to be used in place of coal, whilst the heat from one kiln is economised by the next.

Circular Saws for Stone.—24,275. G. E. ARNOLD, 195, Kennington Road, London, S.E. The disc, instead of being plain, has its edge bevelled from one side and a number of notches formed in it: which notches extend in diminishing grooves towards the spindle.

These patents are open to opposition till December 22nd.

1901.—Hardening Bricks.—20,447. W. P. THOMPSON, 322, High Holborn, W.C. (communicated by H. Crozier & Cie., 9, Rue de Mogador, Paris). The bricks are placed in chambers, where they are hardened by steam under pressure.

Taps for Lavatory Basins.—21,127. J. SHANKS, T. MCINNES and R. BURNSIDE; all of Tubal Works, Barrhead, N.B. The tap is provided with an eccentric, connected with rods that run down below the basin and there attach to treadles. The water can thus be let in or shut off by the foot, knee or elbow, leaving the hands free.

Rotary Kilns.—22,796. I. JACKSON, Glossop. The kiln is lined with a mixture of ground flints and water-glass (sodium silicate); or it is lined with bricks or tiles cemented in place, and to one another, with the above mixture.

1902.—Slide Rules.—13,957. S. MASERA, Winterthur, Switzerland. The rule consists of a casing with a glass top, on the underside of which one of the scales is marked. Below it an endless band passes, being arranged to work over a roller in each end of the casing. The advantages are that the movable scale may be nearly twice as long as the fixed one without projecting out.

The following specifications will be published to-morrow, and will be open to opposition until December 29th. A summary of the more important of them will be given next week The names in italics are those of communicators of inventions.

1901.—14,929, PEASE, roofing, walling, &c. 18,716, WHITHAM, machinery for grinding lime, ashes, sandstone, &c. 21,760, HEAD, taps. 22,529, LE MAITRE, locks. 22,780, BAIRD, sliding hinges. 23,408, GRIESE, receptacles for sand. 23,553, RANSOM & MANLOVE, ALLIOTT & Co., LTD., discharging liquids over bacteria beds. 23,666, COLE, COLE & ACTON CONCRETE PARTITION Co., LTD., machine for making concrete, bricks, tiles, &c. 24,406, BRAUSIL, decorating or moulding articles of wood. 25,827, BEWLAY, expansion joints for water mains. 25,963, FARRER, lavatory basins. 25,965, STIDDER & ROBINSON, flush pipes and closet arms.

1902.—497, WHEATLEY (*Titus & Titus*), apparatus for ventilating and cooling buildings. 4,287, FERGUSON, fastenings for extension ladders. 6,937, TAYLOR, fire-bars and smoke-consuming devices for furnaces. 13,107, HADDAN (*Seikat*), door closers. 15,568 and 15,569, KAISER, spring catch. 17,986, DYMOND (*Vereinigte Maschinenfabrik Augsburg und Maschinenbau Gesellschaft Nürnberg A.-G.*), ironwork and beton or cement roofings or floors. 18,433, FRIESTEDT, sheet piling for docks, wharves, &c. 19,223, HOEHLING, stay for doors and hinged windows. 20,671, LAWRENCE, flexible rulers.

Current Market Prices.

FORAGE.

		£	s.	d.	£	s.	d.
Beans	per qr.	1	15	0	2	0	0
Clover, best	per load	4	15	0	5	10	0
Hay, best	do.	4	10	0	5	0	0
Sainfoin mixture	do.	4	10	0	5	5	0
Straw	do.	1	10	0	2	4	0

OILS AND PAINTS.

Castor Oil, French	per cwt.	1	3	11		—	
Colza Oil, English	do.	1	5	3		—	
Copperas	per ton	2	0	0		—	
Lard Oil	per cwt.	2	13	0	2	14	0
Lead, white, ground, carbonate	do.	1	4	10		—	
Do. red	do.	1	0	4½			
Linseed Oil, barrels	do.	1	3	0		—	
Petroleum, American	per gal.	0	0	5¼	0	0	5⅝
Do. Russian	do.	0	0	4⅛	0	0	5
Pitch	per barrel	0	7	0		—	
Shellac, orange	per cwt.	6	7	6	6	8	6
Soda, crystals	per ton	3	2	6	3	5	0
Tallow, Home Melt	per cwt.	1	12	0	1	12	6
Tar, Stockholm	per barrel	1	0	6		—	
Turpentine	per cwt.	1	19	0		—	

METALS.

Copper, sheet, strong	per ton	67	0	0		—	
Iron, Staffs., bar	do.	6	10	0	8	10	0
Do. Galvanised Corrugated sheet	do.	11	7	6	11	12	6
Lead, pig, Soft Foreign	do.	10	15	0		—	
Do. do. English common brands	do.	11	0	0		—	
Do. sheet, English 3lb. per sq. ft. and upwards	do.	13	10	0		—	
Do. pipe	do.	14	0	0		—	
Nails, cut clasp, 3in. to 6in.	do.	9	5	0		—	
Do. floor brads	do.	9	0	0		—	
Steel, Staffs., Girders and Angles	per ton	5	15	0	6	5	0
Do. do. Mild bars	do.	6	10	0	7	0	0
Tin, Foreign	do.	120	5	0		—	
Do. English ingots	do.	121	0	0	122	0	0
Zinc, sheets, Silesian	do.	24	0	0		—	
Do. do. Vieille Montaigne	do.	24	0	0		—	
Do. Spelter	do.	19	5	0	19	10	0

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Fir, Dantzic and Memel	per load	1	13	0	3	0	0
Pine, Quebec, Yellow	per load	5	5	0	6	5	0
Do. Pitch	do.	3	0	0	3	4	0
Laths, log, Dantzic	per fath.	4	10	0	5	10	0
Do. Petersburg	per bundle	0	0	8		—	
Deals, Archangel 2nd & 1st	per P.Std.	11	0	0	24	15	0
Do. do. 4th & 3rd	do.	10	5	0	15	10	0
Do. do. unsorted	do.	5	12	6	6	10	0

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Coming Events.

Wednesday, Nov. 12.
NORTHERN ARCHITECTURAL ASSOCIATION.—Opening Meeting at 7.30 p.m. Address by the President, Mr. F. Caws, F.R.I.B.A.
INSTITUTE OF SANITARY ENGINEERS.—Meetings of the General Purposes and Finance Committee at 4 p.m., the Election Committee at 5.15 p.m., and the Council at 7 p.m.
SANITARY INSTITUTE (Lectures and Demonstrations for Sanitary Officers, Part I.).—Mr. Max Clarke, A.R.I.B.A., on "House Drainage," 7 p.m.

Thursday, Nov. 13.
MANCHESTER SOCIETY OF ARCHITECTS.—Mr. Halsey Ricardo on "The Revival of Gothic Architecture."

Friday, Nov. 14.
SANITARY INSTITUTE (Lectures and Demonstrations for Sanitary Officers, Part I.).—Mr. J. E. Worth, M.I.C.E., on "Water Supply," 7 p.m.

Saturday, Nov. 15.
GLASGOW AND WEST OF SCOTLAND TECHNICAL COLLEGE SCIENTIFIC SOCIETY.—Meeting at 7.30 p.m.
SANITARY INSTITUTE.—Inspection and Demonstration for Sanitary Officers at the Sewage and Destructor Works, Ealing, at 2.15 p.m., conducted by Mr. Charles Jones, M.I.C.E.
INSTITUTION OF JUNIOR ENGINEERS.—Visit to Messrs. Yarrow & Co.'s New Shipbuilding and Marine Engineering Works, Poplar. Train leaves Fenchurch Street at 9.13 a.m.

Monday, Nov. 17.
ROYAL INSTITUTE OF BRITISH ARCHITECTS.—Dr. F. C. Penrose on "The Drawing of the Ionic Volute," and Dr. A. S. Murray on "A Note on a Fragment of the Parthenon Frieze," 8 p.m.
LIVERPOOL ARCHITECTURAL SOCIETY.—Mr. Otis D. Black on "A Holiday in Normandy."
SANITARY INSTITUTE (Lectures and Demonstrations for Sanitary Officers, Part I.).—Mr. J. E. Worth, M.I.C.E., on "Sewerage," 7 p.m
ULSTER SOCIETY OF ARCHITECTS' DESIGNING AND SKETCHING CLUB.—Mr. W. J. Fennell, M.R.I.A.I., on "Brief Notes on Old Buildings of Antrim and Down," 8 p.m.

Tuesday, Nov. 18.
GLASGOW ARCHITECTURAL ASSOCIATION.—Mr. William N. Muir on "The Duties of a Clerk of Works," 8 p.m.

Wednesday, Nov. 19.
NORTHERN ARCHITECTURAL ASSOCIATION.—Students' Evening.
CHEMICAL SOCIETY.—Meeting at 5.30 p.m.
SOCIETY OF ARTS.—Opening Address by Sir Wiliam Henry Preece.
SANITARY INSTITUTE (Lectures and Demonstrations for Sanitary Officers, Part I.).—Mr. J. E. Worth, M.I.C.E., on "Sewage Disposal," 7 p.m.

Thursday, Nov. 20.
LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.—Mr. John Wright on "Evolution of an Etching," 6.30 p.m.

Friday, Nov. 21.
INSTITUTION OF MECHANICAL ENGINEERS.—Meeting at 8 p.m.

Tenders.

Information from accredited sources should be sent to "The Editor" at latest by noon on Monday if intended for publication in the following Wednesday's issue. Results of Tenders cannot be accepted unless they contain the name of the Architect or Surveyor for the work.

Addressed postcards on which lists of tenders may be stated will be sent post free on application to the Manager, BUILDERS' JOURNAL, *Effingham House, Arundel Street, Strand, W.C.*

Bagshot, Surrey.—For the erection of new premises at Bagshot, Surrey, for the International Tea Co.'s Stores, Ltd. Messrs. Clamp & Drower, architects, Victoria Chambers, Woking:—

E. Spooner & Sons, Bagshot	£1,385
S. W. Gibbs, Aldershot	1,375
F. H. Billimore, Guildford	1,350
H. Charman, Ascot	1,315
W. L. Edgoose, Aldershot	1,198
J. F. Booth, Bunbury	1,149
A. A. Gale, Woking	987
Haslemere Builders Ltd., Haslemere	960

Buxton.—For the laying of about 1,100 lineal yards of 24in. and 36in. diameter cast-iron sewer, together with the construction of six filter-beds, covering an area of about 4,800 sq. yds., and other incidental works, for the Buxton Urban District Council. Mr. William Hedley Grieves, town surveyor:—

J. Holme, Leicester	£11,281 15 3
C. Chamberlain, Leicester	10,553 19 10
Bentley & Lock, Leicester	9,703 13 1
Oakes Brothers, Buxton	9,674 7 7
Johnson & Langley, Leicester and London	9,617 12 11
Hayes Brothers, Heaton Norris, Stockport	9,252 4 1
W. R. Unwin, Ecclesfield, near Sheffield	9,247 15 10
Robinson & Son, Rochdale	8,952 11 4
Embrey & Co., Fenton, near Stoke	8,452 7 8
W. Bradshaw, Buxton	8,874 6 5
A. J. Cottle, Mellor, near Stockport	7,778 2 7
Ainscoath & Son, Glodwick, Oldham	7,514 18 2
J. S. Dawson,* Lower Bredbury, near Stockport	7,148 18 1

* Accepted.

Cardiff.—For the erection of new premises in Tunnel Court. Mr. Edgar G. C. Down, A.R.I.B.A., architect, 31 High Street, Cardiff. Quantities by architect:—

Lattey & Co.	£657 3 2
W. T. Morgan	590 0 0
D. W. Davies	590 0 0
James Allan	570 0 0
Price Brothers	568 0 0
E. Turner & Sons	567 0 0
W. Thomas & Co.	555 0 0
George Griffiths	550 0 0
Knox & Wells	515 0 0
W. Symonds*	500 0 0

* Accepted.

Chelmsford.—For the erection of new laboratories at Chelmsford, for the Essex County Council. Mr. Frank Whitmore, county architect, Chelmsford:—

Bastow & Co.	£2,995 0
Grimwood & Sons	2,889 0
Smith & Sons	2,775 0
S. Parmenter	2,595 0
H. Potter	2,525 0
Everett & Sons	2,438 0
Dobson & Son	2,436 0
Coulson & Lofts	2,400 0
Harris & Rowe	2,396 0
F. Bennett	2,370 0
Davis & Leaney	2,300 0
W. Chambers	2,295 0
F. Johnson	2,260 0
E. West	2,243 0
S. E. Moss	2,200 17
Shillitoe & Sons,* Bury St. Edmunds	2,200 0

* Accepted.

Devonport.—For erection of infant schools in Ker Street, for the Devonport School Board. Messrs. Hine & Odgers, architects, Plymouth:—

A. N. Coles	£3,297
J. Dart	2,650
J. P. Berry	2,489
Matcham & Co., Ltd.	2,448
W. T. Stephenson	2,400
S. Roberts	2,392
A. J. Richards	2,366
T. May	2,362
Jenkin & Son, Devonport	2,345
J. Cockerell, Portsmouth	2,338
W. E. Blake	2,220
A. Andrews	2,155
A. R. Lethbridge & Son*	2,003
H. J. Allen, Devonport	2,081

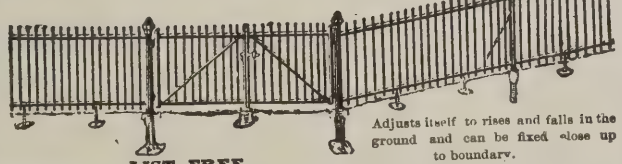
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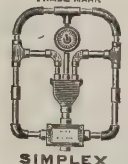
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Bridlington.—For the construction of underground lavatories in South Cliff Road, for the Corporation :—

A. Gardam	£1,441	F. Flintoft	£1,269
E. Corner	1,375	G. Storr*	1,195
F. Postill	1,269	W. Barnes	1,188
J. Sawdon	1,222		

* Accepted. [All of Bridlington.]

Chelmsford.—For the erection of new laboratories at Chelmsford, for the Essex County Council. Mr. Frank Whitmore, county architect, Chelmsford :—

Smith & Sons	£10,735	Harris & Rowe	£9,575
Dobson	10,479	F. Bennett	9,190
S. Parmenter	10,329	F. Johnson	9,300
H. Potter	9,910	Davis & Leney	9,293
Everett & Son	9,869	J. Rayner	9 232
Coulson & Lofts	9,832	E. West	8,843
Grimwood & Sons	9,798	Shillitoe & Sons,*	
W. Chambers	9,619	Bury St. Edmunds	8,800

* Accepted.

Isleworth.—For proposed new vagrant wards at the workhouse at Isleworth, for the Guardians of Brentford Union :—

B. Nightingale, Lambeth	£5,555	0	0
Chambers Brothers, Ealing	5,451	3	9
Messom & Sons, Twickenham	5,335	0	0
Coffin & Son, Westminster	4,958	0	0
Eldridge & Son, Twickenham	4,937	0	0
W. J. Renshaw, Putney	4,927	0	0
R. Mills, Brentford	4,820	0	0
J. Dorey & Co., Brentford	4,628	0	0
M. G. King, Teddington	4,600	0	0
F. Gough & Co.,* Hendon	4,594	0	0

* Accepted.

London.—For improvements at Northey Street School, for the London School Board. Mr. T. J. Bailey, architect :—

		A
Wilmott & Sons	£9,756	£25
C. Cox	9,683	72
F. & F. J. Wood	9,542	64
Killby & Gayford	9,380	63
Perry & Co.	9,348	58
W. Gregar & Son	9,244	60
H. Wall & Co.	9,157	56
G. S. S. Williams & Son	8,939	36
Treasure & Son	8,721	45
J. Outhwaite & Son*	8,704	53

A If walls of classrooms and halls are plastered add.
* Recommended for acceptance.

London, S.W.—For the erection of the Chelsea Dispensary, Manor Street, S.W., for the Chelsea, Brompton and Belgrave Dispensary. Messrs. Arthur W. Sheppard and J. F. Burkinshaw, architects, 21 John Street, Adelphi, W.C. Quantities by Messrs. Robinson & Roods, 8, New Court, Lincoln's Inn, W.C. :—

W. J. Picken	£3,150	0	
Foster & Dicksee	2,992	0	
Holliday & Greenwood	2,837	0	
W. Norton	2,761	10	
Cropley Brothers	2,697	0	
O. Craske	2,565	0	
Peacock Brothers	2,516	0	
Stimpson & Co.	2,440	0	

* Accepted.

Rugby.—For Elboro Schools. Mr. E. H. Lingen Barker, architect :—

Parnell & Son	£2,391	Linnell & Son	£2,154
Winn & Son	2,365	Sturgess & Son	2,105
Hollowell & Son	2,200	Eastwood,* Market Harborough	2,100
Hopkins & Son	2,161		

* Accepted.

Loughborough (Leics.).—For the erection of Howard Street School, for the School Board. Messrs. Barrowcliff & Allcock, architects, Mill Street, Loughborough :—

C. Wright, Leicester	£4,350	0	0
W. Moss & Sons, Ltd.	4,302	0	0
W. F Harding	4,230	0	0
C. A. Dobson	4,227	10	0
Watson & Camm	4,168	15	6
T. Barker & Son	4,096	0	0
W. Corah	4,000	0	0
A. Faulks*	3,995	0	0

* Provisionally accepted. [Rest of Loughborough.]

Lowestoft.—For the erection of tramcar sheds, for the Corporation. Mr. W. J. Roberts, M.A.A., architect, Lowestoft :—

Knights & Wilkins	£5,805	0	
J. Ashby	5,750	0	
Gravelling & Sewell	5,750	0	
C. E. Earl	5,713	0	
Barham & Swan	5,696	0	
Young & Sons	5,675	0	
C. R. Cole	5,671	0	
R. C. Todd	5,555	0	
Smith & Wolfe	5,471	5	
G. E. Hawes	5,419	0	
Bedwell & Parker	5,400	0	
J. & B. Swatman	5,277	15	
T. W. Brady	5,270	0	
G. Elsey	5,240	0	
A. G. Beckett*	5,123	0	

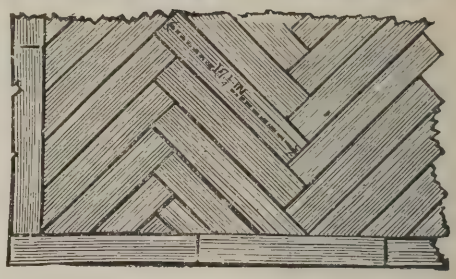
* Accepted.

Witney (Oxon.).—For the providing and laying about 7,100yds. of 9in., 6in., 4in. and 3in. cast-iron water-mains with the requisite valves, hydrants, &c.; also for the construction of a water-tower, tank and engine-house, and for the fixing and provision of pumping machinery, oil-engines, &c., for the Witney Urban District Council. Mr. George Winship, F.G.S., Borough Buildings, Abingdon, consulting engineer :—

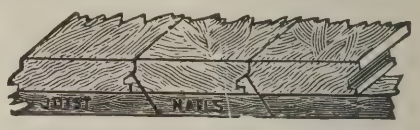
Kingerlee & Sons, Oxford	£8,887	0	0
Bartlett Brothers, Witney	7,866	0	0
Johnson & Langley, Leicester	7,393	18	9
J. Peattie, Oxford	7,760	0	0
H. Shaw, Nottingham	7,268	0	0
Dixon & Fish, Kettering	7,074	4	0
J. H. Vickers, Nottingham	6,991	0	0
H. Roberts, Ross	6,956	0	0
A. G. Osenton, Westerham	6,879	0	0
T. Rowland, Northwich	6,771	0	0
W. Manders, Leyton	6,763	11	0
S. Wood, Bristol	6,680	0	0
D. Young, Witney	6,639	1	7
Gill & West, Southend	6,543	13	7
Porter, Clapton Square, N.E.	6,279	0	0
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THE BUILDERS' JOURNAL AND ARCHITECTURAL RECORD

Nov. 19. 1902. No. 466.

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An Architectural Causerie.

Paris. It may be taken for granted that everyone admires the street buildings of Paris—that is to say, the general effect of ordered refinement which they present. A comparison between the architects of this country and those of France presents many difficulties, but the fact cannot be denied that the streets of London have nothing like so fine an appearance as the streets of Paris; while, on the other hand, the French country houses have none of that homely quietude and dignified simpleness which characterise our own. It is often stated that municipal control is responsible for the excellence of the Paris streets, and people speak as if no architect in that city could do anything without first submitting it to some official body. But, as a matter of fact, such control is much less extensive than popularly supposed, the restrictions being practically confined to the heights and sky-lines of buildings. It is not to this that Paris owes her splendour, but to the training which her architects receive, and their own inherent taste. The Beaux-Arts is their cradle, their academic mother, and, as a result, all their work is of the same classic stamp, instead of being a hotch-potch of every style; but, though their work is similar in its mass, the detail offers plenty of scope for individual treatment. There may be a danger of monotony in such a system of training, but the Paris streets are the result, and it were well if we had a good deal of that kind of monotony in our own streets. It should never be forgotten, however, that the good taste imbedded in the French is the foundation of all their works, a taste which displays itself from the tying-up of a parcel to the development of a monumental scheme of buildings.

The German Emperor. The visit of the German Emperor makes it opportune to note a little matter about architecture with which he concerned himself. The "Fortnightly Review" for November gives the story. It appears that drawings for a new church in Berlin were submitted to the Emperor for assent or correction. His Majesty, intending to make a marginal remark with regard to the cross on the top of the steeple, put a letter for reference above the cross, and drew a straight line from the letter down to the cross. Then he changed his mind and crossed the letter vigorously through. When the architect received his plans back, he carefully studied all the Emperor's corrections, but mistook the crossed-through letter for a star. Knowing better than to ask questions, he built the church, and put a big star on a huge iron pole high above the top of the cross. This strange excrescence was in existence a year ago, and is probably still visible. For similar reasons many monuments and public buildings in Berlin and other parts of Germany have astonishing features.



VATTEVILLE CHURCH, NEAR CAUDEBEC-EN-CAUX, NORMANDY. DRAWN BY H. RAINE.

A Contractor and a Traction-Engine. There has been a dispute between the Stonehaven Harbour Trustees and the contractor for the harbour extension, which culminated in a rather amusing incident the other day. The contractor attempted to remove his plant. The trustees had a right to prevent him doing so, because it was held by them as security for the completion of the contract; but before taking possession it was necessary for them to get a sheriff's order. The contractor set to work loading up his plant on Sunday (when no sheriff's order was obtainable), and would have taken it away had not one of the town bailies thought of the following novel expedient. He suggested that as the quay was the trustees' property they could block it if they liked. Then was a great traction-engine brought to the rescue, hemming in the contractor's lorries! An appeal to the police was disregarded and thus the contractor found himself checkmated.

The Presentation Key. Nothing went wrong when the Lord Mayor of Birmingham recently opened the new baths at Small Heath, and the architect, Mr. Henry Martin, doubtless felt a great deal easier than at the last ceremony of the kind with which he was connected. On that occasion the presentation key, bright and sparkling from its velvet-lined case, was pressed and pressed by the gentlemen officiating, and at last it broke off short! Then the blacksmith came. But the incident should be taken to heart by all those who are responsible for opening ceremonies. A little oil on the lock will avoid much inconvenience, and a commendable plan is to leave it at "half-cock."

NORTHERN ARCHITECTURAL ASSOCIATION.

President's Address.

THE opening meeting of the session of the Northern Architectural Association was held last week at Newcastle.

The president (Mr. Frank Caws) delivered his inaugural address. He said that their profession in the north-eastern district had not progressed at a rate at all commensurate with the great march of local industrial improvement. They heard in these days not infrequently allusions to the so-called "new architecture" by the "new architect," but they found those were mere expressions; they looked in vain for the realities. New trivialities, new vulgarities, new monstrosities, new strainings and over-strainings after originality offended their taste and pained their sense of fitness and propriety at every turn in their walks through our streets; but they looked in vain for any substantial proof or promise of real architectural improvement. It was a sad thought, if a true one, that the old-world architects were and must ever remain the record-breakers of the profession. To have that fact borne in continually on the mind by the evidence of the mighty and majestic works of the oldest masters was depressing and deadening in such a degree to the young architect whose brother was, say, a chemist or an electrician, full of keen expectation of surpassing to-morrow the marvels of yesterday, that it was, perhaps, no wonder if he did occasionally "chuck" his profession from a feeling that it was scopeless and hopeless.

There were young architects, and old ones too, who had never realised the difference between the imitations of progress which seemed to environ their own profession and the great scope of certain other professions which were apparently invested by a boundless sea of accessible new attainment. These architects might live and work content that the thing that hath been was the thing that shall be.

Judging, however, by the frantically ridiculous struggles for "something new" which many modern architects were making, they were by no means at rest within their professional limitations, and seemed crazed with the craving for they knew not what. It could not be denied that with all its restlessness and pettiness and vain theatricality our most modern architecture was a more or less faithful reflex of the character of our age and generation, and certainly if they might forecast the future from the past one of the outlets for the development of "new" architecture (whether improved on or not was quite another matter) was in the adaptation of new designs to the spirit and taste and fashion of the day.

While deference to the fashion of his time is obligatory on the architect who did not desire to become unpopular, yet there was a great distinction between the deference which was servile and that which was conciliatory; and no architect in following fashion should fail to use his own trained taste and judgment in accentuating what he felt was good and in minimising what he knew was bad in the type which he was affecting.

Whether they liked it or not, undoubtedly the new architecture, such as it was, was being developed by the fashion of our day, and they must make the best they could of it. Perhaps if they "followed the gleam," and each did his best according to his opportunities to convert a glimmer into a dawn, they might be unconscious contributors of some new architecture which they could not now realise except "through a glass darkly."

They had at their command new materials and methods and appliances, and if they made themselves thoroughly acquainted with their nature and possibilities, and quite proficient in their application, they would necessarily, though slowly and to a large extent unconsciously, be contributing to the formation of that truly new architecture which was destined to gladden the eyes of future generations.

The Northern Architectural Association was not able to supply souls to those of them who had not got any, but it helped students and members to become masters of the instruments, so to speak, of their profession. Mr. Caws proceeded to mention the numerous advantages derived from membership of the Association, and commended the classes carried on at the Durham College of Science. Their Association was stronger than ever it was, and if they all pulled together, instead of finding fault, there was a bright future before them. If the Association in its first function as a professional tribunal, and in its second function as an architect's social centre, had achieved some measure of success, still more had it succeeded in fulfilling its third function as an educational agency.

Proceeding, Mr. Caws remarked that the study of old works, both in books and buildings, not only informed the student of facts but created as it were both a mental soil and a mental atmosphere, rich enough and rare enough to produce new and beautiful growths which could not have taken root and found sustenance in the stormy and thorny ground of the uncultivated mind. Every beautiful building, whether old or new, was an educator. The sense of fitness and propriety generally accompanied, if it did not help to constitute, the sense of beauty, and the more they were driven by force of circumstances to regard fitness as the chief aim of all their designs the more pleasing and satisfactory would be their outcome.

He thought their profession had suffered from attaching too much importance to exterior elevational design and too little to internal design. From the very nature of the case, and especially from the play of light and shade, the interior of a building was usually much more interesting and much more capable of artistic and poetic treatment than the exterior, and it seemed a pity that architects should leave to the professional decorator so much of the internal treatment as should more properly be regarded as the chief artistic opportunity of the architect himself.

Concluding, Mr. Caws said no matter what materials were placed at their disposal they would never be able to do justice either to them or to themselves unless they made themselves thoroughly conversant with those great physical principles which applied to all materials under the sun, and by the wise application of which every structural material was made subservient to the architect's dream. Those principles were strict, straight, stern and strong, and formed a backbone to any structural scheme to which the architect properly applied them. While they should lean hard on those principles, their imagination must not be neglected, for art, as well as science, claimed devotion. It might be that few succeeded throughout their professional career in preserving that true balance between science and art, between faithfulness to truth and the worship of beauty, which was characteristic of the genuine architect. To maintain that balance was a great struggle for even the strongest intellect and will; but it was the struggle to which their profession called them, and if they succeeded in it the greater was the glory that the strife was hard.

The hon. secretary (Mr. A. B. Plummer) read the award of the assessors (Mr. Frank Caws and Mrs. R. Burns Dick) in connection with the offer of prizes by the ex-president (Mr. W. Glover) for the best sets of testimonies of study drawings prepared for the R.I.B.A. intermediate examination. The prizes were awarded to Mr. C. I. Greenhow (Newcastle) and Mr. W. A. Chamberlain (Tynemouth), whose work was much admired.

A large photographic group of members of the Association and a photograph of the late Mr. Thomas Oliver, the first hon. secretary and a former president of the Association, as well as one of the founders, had been received, and were in readiness for hanging in the rooms.

LONDON COUNTY COUNCIL.

R.I.B.A. Petition against Vauxhall Bridge.

AT last week's meeting of the Council Sir W. Collins presented a petition from the Royal Institute of British Architects in reference to Vauxhall Bridge, expressing the earnest hope that the erection of a stone or granite bridge, as originally contemplated, might yet be found possible. The petitioners desired to impress upon the Council the vast importance of such a structure as a great architectural memorial of our time and of twentieth-century art. A bridge across the Thames had an architectural value to the City hardly second to that of our great monumental buildings. The Council of the Institute had been favoured with an opportunity of inspecting the new design for the proposed steel bridge with ornamental facings and parapets in cast-iron carried by granite piers. While expressing no opinion on the engineering questions involved, the Council of the Institute felt it their duty to point out that there was a total lack of any artistic quality in the ornamental portions of the design. They remained of the opinion so often expressed by them that in dealing with great architectural monuments, which in their simplicity of form relied only upon competent artistic treatment for their monumental success, it was essential to adopt a system, common in other countries, of associating an architect with the engineer. They had no hesitation in saying that if the scheme of the pseudo-Gothic type illustrated should become a reality it would remain a discredit to the art of the century, to the London County Council, and to all connected with its inception. The petition was referred to the Bridges Committee.

The Strand Bridge.

The Improvements Committee recommended "that the consideration of the question of the construction of a subway or bridge at the junction of the Strand with Wellington Street, and at the junction of Holborn with Southampton Row, be allowed to remain in abeyance until after the formation of the new street from Holborn to the Strand, when it will be possible to ascertain the effect of the construction of that street upon the general traffic, and also the effect of the working of the tramway subway from Southampton Row to the Strand. That it be an instruction to the Improvements Committee to bear in mind the general question raised in the Council's resolution of January 21st, 1902, whenever the widening of main thoroughfares or the construction of new streets is in contemplation, so that consideration may be given to the question whether, in connection with any such improvements, some arrangement may be made for the relief of the cross traffic." This was agreed to.

Underground Railways.

The following resolution was carried:—"That in the opinion of the Council it will be detrimental to the interests of London if any Bill for the construction of a tube railway is proceeded with in Parliament until a full enquiry shall have been held and a report presented upon the following questions: (1) How far it is possible to adapt the provisions of the Light Railways Act, 1896, to underground railways in London

as recommended by the Joint Select Committee of 1901; (2) whether it is possible and desirable to formulate some general scheme of underground railway accommodation capable of serving the requirements of London as a whole, and, if so, what should be the main features of such general scheme; (3) whether a system of deep-level tube railways will afford the best results, or whether it will not be preferable to adopt either wholly or partially the system of underground locomotion in operation in Continental and American cities; (4) how and by whom such general scheme can best be carried out, having regard to the general traffic within London, the special need of supplying means of access to the suburbs, the housing problem, the need for cheap fares, the raising of necessary capital, existing means of locomotion."

It was further resolved to send a deputation to the President of the Board of Trade asking him to assist in obtaining the appointment of a commission to consider the whole question and all proposals for the construction and supervision of underground railways in London.

On the recommendation of the General Purposes Committee it was resolved "That the Parliamentary Committee be instructed to take the necessary steps for inserting a provision in the next General Powers Bill to enable Metropolitan Borough Councils to incur expenditure in the maintenance of public clocks in their respective boroughs."

THIS SESSION'S PRESIDENTS.

THE following are the presidents this session of the several architectural societies and institutes throughout the kingdom:—

R.I.B.A.—Mr. Aston Webb, A.R.A.
A.A.—Mr. Henry T. Hare.
Society of Architects—Mr. Silvanus Trevail.
Aberdeen—Mr. Arthur Clyne.
Birmingham—Mr. Arthur Harrison.
Bradford—Mr. John Flew.
Bristol—Mr. Joseph Wood.
Cardiff, S.W. & M.—Mr. David Morgan.
Devon and Exeter—Mr. J. M. Pinn.
Dundee—Mr. A. A. Symon.
Edinburgh—Mr. A. Hunter Crawford.
Glasgow I.—Mr. H. K. Bromhead.
Glasgow A.A.—Mr. Charles E. Whitelaw.
Glasgow T.C. A.C.S.—Mr. C. Ernest Munro.
R.I. of Ireland—Mr. George C. Ashlin.
Leeds and Yorkshire—Mr. Butler Wilson.
Leicester and Leics.—Mr. Arthur Wakerley.
Liverpool—Mr. John Woolfall.
Manchester—Mr. Alfred Darbyshire.
Northern A.A.—Mr. Frank Caws.
Nottingham—Mr. Arthur Marshall.
Sheffield—Mr. P. Marshall.
Surveyors' Institution—Mr. Arthur Vernon.
Ulster—Sir Thomas Drew.
York—Mr. C. H. Channon.

ST. MARK'S CHURCH, PLUMSTEAD.

THE illustration on this page shows the interior of the completed church of St. Mark at Plumstead, S.E., designed by Mr. Mileham to have a continuous nave and two aisles of five bays of somewhat large dimensions, and a sixth bay at the south end (the axis of the building being north and south) in the form of a low aisle or galilee, with two arched openings into the nave and one into each aisle. At present only three bays of the nave and aisles have been erected. It is intended ultimately to mark off with a screen the chancel and the side chapel, which will occupy a bay and a half of the nave and one aisle. The walls are of concrete with rough-cast external facing and stuccoed inside, the dressings being of Bath stone. The design is quite plain, the nave being covered by a simple barrel vault and the aisles by plain groined Roman vaults. The barrel vault of the nave is covered by a roof of pantiling, while the exterior surfaces of the groined vaults are covered with asphalt and have no roofs over. The floor is paved with wood blocks, excepting the sanctuary, which has a black and white marble floor and steps. The work has been executed by Messrs. J. Dorey & Co., of Brentford. The drawing reproduced below was exhibited at this year's Royal Academy.



Bricks and Mortar.

Aphorism for the Week.

I wish his favourite architects were graced
With sounder judgment, and a Christian taste.
SAXE ("The Money-King").

Our Plates. THE objects of Chief's College, Lahore, India, are the education of the relatives of the Ruling Chiefs of the Punjab. The main buildings are of bricks with red sandstone dressings, the entrance porches being entirely of stone. The ground plan was furnished by Colonel Jacob, R.E., and the elevations by Bhi Ram Singh, the architect who decorated the Indian apartments in Osborne House.—The White Cottage, Caterham, has been built about ten years. The walls are covered with white rough-cast and with trellis up to the first floor, with a base of red bricks. The outside shutters are painted green, and the roof is covered with local red tiles. The house stands in about two acres of ground, which has been laid out on formal lines. To the south of the house is a small flower garden and sundial, surrounded by a yew-hedge, and with a bowling green at one side. The architect was Mr. H. L. Fedden.—The houses at Lee-on-the-Solent have just been completed on the Marine Parade, and are within a few feet of the sea. The outside walls are hollow, and are covered with fine white rough-cast, and have a red-brick base. The shutters are painted green, and the roofs are covered with hard local red tiles. The architect of this building is also Mr. H. L. Fedden, of 11, Hart Street, Bloomsbury, W.C., formerly the pupil of Mr. Mervyn Macartney.

Stainton Parish Church. THE ancient parish church of Stainton in Cleveland has been reopened after restoration of the nave and transept. The side walls of the nave had been in modern times built to a considerably greater height than was in keeping with the height of the tower. These have been lowered, and the modern roof of low pitch with its flat plaster ceiling removed and replaced by an entirely new open-timber roof of pitch-pine of steeper pitch with carved bosses and carved moulded battlemented cornice, the ridge being kept in its former position. The transept roof has been treated in a similar way, but with a very low-pitched roof covered with lead. Externally the appearance of the church is greatly improved by the addition of a dressed stone parapet and coping, which in the case of the transept gable is stepped up and finished on the top with a carved cross. A new two-light window has been introduced into the west wall of the transept in place of the old one which was built up. The old plaster has been stripped from the walls, and replaced by cement plaster of better quality. The walls have been lined with pitch-pine moulded panelling. The floor has been taken up and relaid with pitch-pine wood blocks. The unsightly modern chancel screen has been removed and replaced by a plain panelled dwarf screen of pitch-pine. A recumbent effigy of a priest which stood against the south wall has been removed and placed on the floor of the chancel. The whole of the work has been carried out by Messrs. Allison Brothers, of Middlesbrough; Messrs. Hicks & Charlewood, of Newcastle, being the architects.



THE WHITE COTTAGE, CATERHAM, SURREY: VIEW FROM SOUTH-WEST. H. L. FEDDEN, ARCHITECT.

Langtoft Church. THE church of St. Peter, Langtoft, was reopened recently after extensive restoration and additions. Mr. C. Hodgson Fowler, F.S.A., of Durham, was the architect, and Messrs. J. Thompson & Co., of Peterborough, were the contractors. Before the restoration the church consisted of nave and chancel and western tower, but in lowering the ground outside the building the bases of an arcade were found in the north wall of the nave. This nave was of quite recent date, the old one having been pulled down and the old material used up in the new south wall, the north one being of brick faced with stone. When the bases of the old nave were discovered, Sir Tatton Sykes determined to rebuild the nave and add aisles as far as possible according to the original plan. This has been done, and the church now possesses a nave of six bays with north and south aisles, organ-chamber, a vestry and south porch, in addition to the ancient tower and chancel. The chancel has been carefully restored, and, like the rest of the church, has been roofed with oak and covered with lead. The earliest portion of the church is the tower—an excellent specimen of Early English of about the year 1200. It was originally capped with some form of spire. In the fifteenth century this spire was removed, and the walls were then raised about 3ft., and a cornice with battlements and pinnacles, substituted. These have long since disappeared, and the tower is now finished with a plain parapet. The north arcade is designed from the fragment of old work found in the walls, and is of an entirely new design. The chancel is a fine work of the Decorated style of the fourteenth century, and of rather unusually large proportions, being wider and higher than the original nave. The altar, pulpit, choir stalls and seats are all of solid oak, very substantial in character, and ornate. The church is situated on high ground, and additional height and dignity have been given to it by the excavation alluded to. The restoration is not quite completed; a font with swinging canopy—a copy of the ancient font at Fishlake—a brass eagle lectern, and a tower screen of oak have yet to be added; also stained glass in the windows. The church is lighted by Belge lamps in wrought-iron baskets hung from the roof, and is heated by Grundy's hot-air system. The steps and paving of the floors are of Pateley Bridge stone, with wood blocks under all the seats. A new apex and cross have been fixed on the gable at the east end of the chancel. Seating is provided for about 250 persons, and there is ample floor-space for increasing the accommodation by the use of chairs, which are already provided.



HOUSE IN RICHMOND ROAD, LEE-ON-THE-SOLENT. H. L. FEDDEN, ARCHITECT.

Building a Lighthouse. THE new lighthouse which has just been completed on the foreshore below Beachy Head, at a distance of 600ft. from the base of the cliff, is 142ft. in height, about 48ft. in diameter at the base, and tapers upwards to 18½ft. at the top. It was designed by Mr. T. Matthews, engineer-in-chief to the Trinity House, and was commenced in July, 1899. Granite for the tower of excellent quality from the De Lank quarries, near Bodmin, was supplied, and each stone cut and dressed for its position by the hard stone firms of Bath, in conformity with the requirements of the engineer's specification. From the quarry the stones were conveyed to the work-yard on the cliff at Beachy Head, from which the operations were to be carried on. At this point, the nearest to the lighthouse site, the height of the cliff is 450ft., and the engineer arranged a wire rope way from this height down to the foreshore, to carry down

stone, materials and workmen. The first part of the work was the building of a circular dam on the foreshore, which uncovers at low water, within which the excavation for the foundation of the tower could be carried on to the requisite depth of 10ft. The chalk here was found to be of a particularly hard texture, rendering the excavation difficult and arduous. As soon as the required depth was obtained the lowest course of the granite tower was laid on Portland cement bedding, and the work progressed rapidly. After nearly three years of steady work a firm and stable tower now stands on the site, containing 3,660 tons of granite, each stone being dovetailed into its neighbours on each of its inner faces, thus rendering the structure practically a monolith and it is satisfactory to record that in connection with the work no accident to life or limb occurred.

A New Parliament House. The members of the Hungarian Parliament this autumn session are meeting for the first time in their magnificent house on the banks of the Danube in Budapest. The building is of Gothic design, and its exterior presents an imposing appearance. The two assembly rooms are situated on either side of the "Salle de Gala," which is beneath the cupola, and which serves as a rendezvous for members of both chambers. The main entrance to the building, in order to facilitate access, is placed in the centre of the façade facing the city, the triple door of entry (as well as the two doors of the shelters, situated to the right and left of the projecting parts of the façade) affording access to the principal hall. The Chamber of Magnates contains 386 seats, and that of the Deputies 438 seats, with ten fauteuils for Ministers and the tribune for the President, the official reporter, and the secretary, with seven tables in each House for shorthand writers. Until 1848 the Hungarian Parliament was stationed at Pressburg, but in that year it was removed to Pest, and since then the two chambers have been located in different buildings. On October 12th, 1885, the first sod of the new Houses of Parliament was turned.

"Architectural Reviews" Wanted.—The publisher will be glad to send a copy of the current number of THE ARCHITECTURAL REVIEW in exchange for any one of the issues for June, July, August, September or December, 1901, or January, 1902.



HOUSES ON MARINE PARADE, LEE-ON-THE-SOLENT. H. L. FEDDEN, ARCHITECT.

BUILDERS' FOREMEN.

A MEETING of the Bristol Association of Clerks of Works and Builders' Foremen was held last week, when Mr. F. N. Cowlin (of Messrs. W. Cowlin & Son, contractors) read a paper on "Foremen and their Duties." He suggested that the qualifications for a successful foreman were knowledge, energy, confidence and tact, organisation and honesty.

With regard to knowledge, he pointed out that the majority of general foremen appeared to be joiners, and suggested that this was brought about by the fact that in their branch of the trade they had to think and act for themselves by applying lines to their work, whereas the mason and bricklayer were more mechanical by reason of the foreman generally thinking and applying the lines and cutting the moulds for them; hence the former acquired more knowledge of drawing, &c. In these days of technical education and the many local opportunities a man had only himself to blame who was lacking in this respect. Every foreman should have a sound knowledge of materials and approximate cost of labour, methods of taking and checking quantities, freehand and geometrical drawing, reading and writing specifications and business letter-writing, and he should be conversant with modern business methods and have an observant and critical knowledge of men, and, above all, he should be past-master in the particular craft to which he belonged.

After pointing out how these things might be acquired, the lecturer said that a foreman should be energetic, example being better than precept.

Next, a man possessing the former qualities must needs have confidence in himself—a confidence born of knowledge. He could then hold his own with either his employer, the architect, or clerk of works, and this invariably ended in the foreman being generally respected by all with whom he had business relations. He emphasised the difference between tact and "cheek." The former was the art of making oneself agreeable to all sorts and conditions of men in all circumstances, and in this spirit to fearlessly do one's duty. A methodical foreman could manage 150 men as easily as an indifferent one could manage twenty-five. The works and men should be arranged that the best possible results could be obtained, and suggestions were given how this could be done. They should compare their own system with others, be always eager to learn any and everything worth knowing. The lecturer pointed out how, in these days of close competition, when works were done on a very small margin of profit, any laxity on the part of the foreman must lead to a loss on the contract and a bad job for all concerned.

Every foreman should keep a diary, and it should be to the works what the log-book was to the ship; approach an architect and clerk of works with a list of requirements, &c., get verbal orders for extras confirmed in writing, and always keep a correct account of all variations, so that these might be adjusted at the completion of the contract.

The lecturer said that he had placed honesty last, not that he thought it the least of a foreman qualifications, but that he realised he was addressing a meeting of honest men, and he spoke with a wide and varied experience of foremen and clerks of works, and he was proud to think that there were very few foremen in the city of Bristol holding positions in the building trades that touched secret commissions. The foreman should hold the balance true between employer and employed. A foreman possessing these qualities could always secure a good job and a fair wage.



HOUSE IN RICHMOND ROAD, LEE-ON-THE-SOLENT. H. L. FEDDEN, ARCHITECT.

SCHOOL PLANNING.

BOARD OF EDUCATION BLUE-BOOK.

THE rules to be observed in planning and fitting up public elementary schools have just been issued by the Board of Education as a Blue-book. They are intended to show what the Board deem essential in the construction and design of school buildings, but in other respects they are not meant to restrict liberty of treatment.

In a prefatory note it is stated: "No school should ordinarily be built to accommodate more than 1,000 to 1,200 children in three departments. No single department should accommodate more than 400 children. A large school in three departments might conveniently be divided in the following proportions: Boys 360, girls 360, infants 380. For departments of this size the most suitable plan is that of a central hall with the classrooms grouped round it; as a rule such a department would probably require seven classrooms. Smaller departments may be planned conveniently with the classrooms opening from a corridor. For small schools a large room with one or more classrooms will be sufficient. There should always be at least one classroom, except in special cases.

"Where the site is sufficiently large, open and fairly level, the most economical plan is that of a school on a single floor. Such an arrangement is also preferable on educational grounds. In any case it is desirable that a school building should not be on more than two floors. A building on three floors is open to many objections, and should only be proposed in special circumstances, or on very costly sites."

Drawings Required.

The following are the drawings required:—

(1) A block plan of the site, drawn in ink to scale of 20ft. to an inch. This plan must indicate (*a*) the position of the school buildings; (*b*) out-buildings; (*c*) playground; (*d*) drains (collateral and main), with their fall and depth below ground; (*e*) entrances; (*f*) boundary walls, or fences, and their nature; (*g*) roads; (*h*) the points of the compass; (*i*) the levels of the grounds at the principal points.

[N.B.—For approval of site alone, the plan should show (*g*), (*h*) and (*i*).]

(2) A plan of each floor of the schoolrooms (and teacher's or caretaker's residence, if any) drawn in ink to a scale of 8ft. to an inch. The internal fittings of the rooms (fireplaces, groups of desks, &c.) must be accurately shown. The plan should also state whether the rooms are intended for boys, girls or infants. In cases of enlargement, a plan showing the buildings as they exist is needed.

(3) Sections and at least four elevations, also drawn in ink to a scale of 8ft. to an inch. The ceiling, the positions of window-heads in relation to them, and the mode of ventilation must be shown.

[N.B.—(*a*) Pencil drawings cannot be received, but coloured tracings in ink on tracing cloth may be submitted while plans are in the preliminary stage of pencil, so that suggested alterations can be adopted without difficulty or expense.

(*b*) Diagrams are of no value and cannot be accepted.

(*c*) In the case of enlargements or alterations the whole site and the existing building should be as accurately shown in every respect as the proposed changes, and in such a manner that any change of numbers can be ascertained.

(*d*) All plans should be dated, the scales drawn on and dimensions figured.]

(4) A detailed specification separated under the several branches of the building trade.

(5) A section of the desk proposed to be used, drawn to a scale of 1½in. to a foot.

General Planning.

Rule 1 deals with planning and states that the accommodation of every room depends not merely on its area but also on the lighting, the shape of the room (especially in relation to the kind of desk proposed), and the position of the doors and fireplaces. The doors and fireplaces should be arranged so as to allow the whole of one side of any room to be left free for the groups of desks.

Central Halls.

Rule 2 is as follows:—A central hall should have a floor-space of about 3½ sq. ft. but not exceeding 4 sq. ft. for each scholar for whom the school is recognised. The hall must be fully lighted, warmed and ventilated.

(*a*) A single central hall may be provided for the joint use, at separate times, of two departments, provided that it is so placed as to be readily accessible from the classrooms of each department.

(*b*) Where outdoor space is not available, physical training should be given in the central hall (or corridor). This purpose should be taken into consideration at the time when the building is planned. Since fixed gymnastic apparatus is unsuitable for children under fourteen years of age, a separate gymnasium is not required and cannot be approved.

Corridors.

Rule 3.—Large schools not built with a central hall must be provided with a wide corridor giving access to the rooms.

A corridor should be fully and directly lighted and ventilated, and from 8ft. to 12ft. wide, according to the size of the school. Two or three of the rooms ought to be separated only by movable partitions, in order to secure flexible working.

Schoolrooms.

Rule 4.—A schoolroom should never be designed for more than 120 children, and a room of even smaller size is desirable. The proper width is from 18ft. to 22ft., according to the kind and arrangement of the desks; but very small schoolrooms need not be more than 16ft. wide.

No schoolroom lighted from one side only can be approved. The gable ends should be fully utilised for windows, and there should be no superfluous windows opposite the teacher.

A schoolroom which has no classroom attached should not contain more than 600 sq. ft. of floor-space.

Classrooms.

Rule 5.—The number of classrooms should be sufficient for the size and circumstances of the school.

(*a*) The classrooms should never be passage-rooms from one part of the building to another, nor from the schoolrooms to the playground or yard. Both schoolrooms and classrooms must have independent entrances. Every room should be easily cleared without disturbance to any other room.

(*b*) A classroom should not be planned to accommodate more than from fifty to sixty children; but in special cases somewhat larger rooms may be approved. The minimum size is 18ft. by 15ft., but if the desks are arranged parallel to the longer side of the room the width should be not less than 16ft. In the absence of supplementary light the measurement from the window-wall in a room 14ft. high should not exceed 24ft. 8in.

Accommodation.

Rule 6.—The accommodation of a school for older scholars is based upon the number of children who can be seated at the desks, provided that a minimum of 10 sq. ft. of floor-space per child is obtained.

A central hall will not be counted in the accommodation, nor will a classroom for cookery, laundry, manual instruction, drawing or science.

Walls, Floors and Roofs.

Rule 7.—The walls of every room used for teaching, if ceiled at the level of the wall plate, must be at least 12ft. high from the level of the floor to the ceiling; if the area of the room exceed 360 sq. ft. the height must be not less than 13ft., and if it exceed 600 sq. ft. then the height must be at least 14ft.

(*a*) The walls of every room used for teaching, if ceiled to the rafters and collar-beam, must be at least 11ft. high from the floor to the wall-plate, and at least 14ft. to the ceiling across the collar-beam.

(*b*) Great care should be taken to render the roofs impervious to cold and heat.

(*c*) Roofs open to the apex are very undesirable. They can only be permitted where the roofs are specially impervious to heat and cold, and where apex-ventilation is provided. Iron tie-rods are least unsightly when placed horizontally.

(*d*) The whole of the external walls of the school and residence must be solid. If of brick, the thickness must be at least one brick and a half, and if of stone at least 20in.; where hollow walls are proposed, one portion must have the full thickness required for a solid wall.

(*e*) All walls, not excepting fence walls, should have a damp-proof course just above the ground line.

(*f*) The vegetable soil within the area of the building should be removed, the whole space covered by a layer of concrete not less than 6in. thick, and air-bricks inserted in opposite walls to ensure a through current of air under floors for ventilation to joists.

(*g*) Timber should be protected from the mortar and cement by asphalt or tar.

Entrances.

Rule 8.—Entrances should be separate for each department and each sex. In large schools more than one entrance to each department is desirable. The principal entrances should never be through the cloak-room. Entrance doors should open outwards as well as inwards. A porch should be external to the schoolroom. An external door, having outside steps, requires a landing between the door and the threshold.

Staircases.

Rule 9.—There must be separate staircases for each sex and each department. Every staircase must be fireproof, and external to the halls, corridors, or rooms. Triangular steps or "winders" must not be used. Each step must be about 13in. broad and not more than 5½in. to 6in. high. The flights must be short, and the landings unbroken by steps. The number of staircases must be sufficient not only for daily use but also for rapid exit in case of fire or panic. For any upper floor accommodating more than 250, a second staircase is essential.

Cloakrooms and Lavatories.

Rule 10.—Cloakrooms should not be passages, and should be external to the schoolrooms and classrooms, with gangways at least 4ft. wide between the hanging-rails, and amply lighted from the end. They should not be placed against the gable wall. The hanging-rail should be arranged so that the children can enter and leave the cloak-room without confusion or crowding. Hat pegs should be 12in. apart, numbered, and of two tiers. The lineal hanging space necessary to provide a separate peg for each child is thus 6in.

Thorough ventilation is essential, so that smells are not carried into the school.

Lavatory basins are needed. Girls' schools require a larger number than boys' or infants'.

A lock-up slop sink, water-tap and cupboard are desirable for the caretaker.

Lighting.

Rule 11.—Every part and corner of a school should be fully lighted. The light should, as far as possible, and especially in classrooms, be admitted from the left side of the scholars. [This rule will be found greatly to influence the planning, see rules 4, 11 (*b*) and 12 (*a*)]. All other windows in classrooms should be regarded as supplementary or for ventilation. Where left light is impossible, right light is next best. Windows full in the eyes of the teachers or scholars are under no circumstances approved. In rooms 14ft. high any space beyond 24ft. from the window-wall is insufficiently lighted.

(*a*) Windows should never be provided for the sake merely of external effect. All kinds of glazing which diminish the light and are troublesome to keep clean and in repair must be avoided. A large portion of each window should be made to open for ventilation and for cleaning.

(*b*) The sills of the main lighting windows should be placed not more than 4ft. above the floor; the tops of some windows should reach nearly to the ceiling, with a portion made to swing. The ordinary rules respecting hospitals should here be remembered. Large spaces between the window heads and ceiling are productive of foul rooms.

(*c*) Skylights are objectionable. They cannot be approved in schoolrooms or classrooms. They will only be allowed in central halls having ridge or apex ventilation.

(*d*) The colouring of the walls and ceilings and of all fittings in the rooms should be carefully considered as affecting the light. This point and the size and position of the windows are especially important in their bearing on the eyesight of the children.

Ventilation.

Rule 12.—The chief point in all ventilation is to prevent stagnant air; particular expedients are only subsidiary to this main principle.

Apart from open windows and doors, there must be provision for copious inflow of fresh air, and also for the outflow of foul air at the highest point of the room. The best way of providing the latter is to build to each room a separate air chimney carried up in the same stack with smoke flues. An outlet should be by a warm flue or exhaust, otherwise it will frequently act as a cold inlet. Inlets are best placed in corners of rooms furthest from doors and fireplaces, and should be arranged to discharge upwards into the room. Gratings in floors should never be provided. Inlets should provide a minimum of $2\frac{1}{2}$ sq. in. per child and outlets a minimum of 2in. All inlets and outlets should be in communication with the external air.

Besides being continuously ventilated by the means above described, rooms should as often as possible be flushed with fresh air admitted through open windows and doors. Sunshine is of particular importance in its effects on ventilation and also on the health of children.

(*a*) Although lighting from the left hand is considered so important, ventilation demands also the provision of a small swing window as far from the lighting as possible, and near the ceiling.

Warming.

Rule 13.—The heat should be moderate and evenly distributed so as to maintain a temperature of from 56 degs. to 60 degs. When a corridor or lobby is warmed, the rooms are more evenly dealt with and are less liable to cold draughts. Where schools are wholly warmed by hot water, the principle of direct radiation is recommended. In such cases open fireplaces in addition are useful for extra warming on occasions, and their flues for ventilation only.

(*a*) A common stove, with a pipe through the wall or roof, can under no circumstances be allowed. Stoves are only approved when—

(i) provided with proper chimneys (as in the case of open fires);

(ii) of such a pattern that they cannot become red-hot, or otherwise contaminate the air;

(iii) supplied with fresh air, direct from the outside, by a flue of not less than 72in. super.; and

(iv) not of such a size or shape as to interfere with the floor-space necessary for teaching purposes.

(*b*) A thermometer should always be kept hung up in each room.

(*c*) Fireplaces and stoves should be protected by fireguards.

Sanitary Arrangements.

Rule 14.—Water-closets within the main school building are not desirable, and are only required for women teachers. All others should be at a short distance and completely disconnected from the school. Privies should be fully 20ft. distant.

(*a*) The latrines and the approaches to them must be wholly separate for the two sexes. In the case of a mixed school this rule especially affects the planning. Passages or corridors should not be used by both sexes; where such an arrangement is unavoidable, there must be complete supervision from the classrooms by sheets of clear glass.

(*b*) Each closet must be not less in the clear than 2ft. 3in. wide, nor more than 3ft. fully lighted and ventilated, and supplied with a door. The doors should be at least 3in. short at the bottom and at least 6in. short at the top. More than one seat is not allowed in any closet.

(*c*) The children must not be obliged to pass in front of the teacher's residence in order to reach their latrines.

(*d*) The following table shows approximately the number of closets needed:—

	For Girls.	For Boys.	For Infants.
Under 30 children -	2	1	2
,, 50 ,, -	3	2	3
,, 70 ,, -	4	2	3
,, 100 ,, -	5	3	4
,, 150 ,, -	6	3	5
,, 200 ,, -	8	4	6
,, 300 ,, -	12	5	8

There should be urinals in the proportion of 8ft. per 100 boys.

(*e*) Earth- or ash-closets of an approved type may be employed in rural districts, but drains for the disposal of slop and surface water are necessary. Cesspits and privies should only be used where unavoidable, and should be at a distance of at least 20ft. from the school. [Building form "A," which may be obtained on application, gives suggestions as to their construction and arrangement.] The proximity of drinking wells should be carefully avoided.

(*f*) Soil drains must always be laid outside the building (on a hard even bottom of concrete) in straight lines with glazed stoneware pipes, carefully jointed in cement and made absolutely water-tight. A diameter of 4in. is sufficient except for drains receiving the discharge of more than ten closets, when the diameter should be 6in. The fall should never be less than 1 in 30 for 4in. and 1 in 40 for 6in. drains. An inspection-opening or chamber should be provided at each change of direction so as to facilitate cleansing the drain without opening the ground. Every soil-drain must be disconnected from the main sewer by a properly constructed trap placed on the line of drain between the latrines and the public sewer. This trap must be thoroughly ventilated by at least two untrapped openings; one being the 4in. soil pipe carried up full size above the roof, and the other an inlet pipe connected with the side of the trap furthest from the public sewer. Automatic flushing tanks are desirable where trough closets are used.

(*g*) Urinals must in all cases have a sufficient supply of water for flushing.

(*h*) Waste pipes from sinks or lavatories should be first trapped inside, and then made to discharge direct through an outer wall over a trapped gulley.

Desks.

Rule 15.—Seats and desks should be provided for all the children, graduated according to their ages, and placed at right angles to the window-wall. (See also rules 4 and 11.) The seats should be fitted with backs.

An allowance of 18in. per scholar at each desk and seat will suffice (except in the case of the dual desk), and the length of each group should therefore be some multiple of 18in., with gangways of 18in. between the groups and at the walls. In the case of the dual desk the usual length is 3ft. 4in., and the gangways 1ft. 4in.

(*a*) No desks should be more than 12ft. long. In an ordinary classroom five rows of long desks or six rows of dual desks are best; but in a schoolroom or room providing for more than sixty children, there should not be more than four rows of long desks or five rows of dual desks.

If a schoolroom is 18ft. wide, three rows of long desks or four of dual desks may be used; if the width is 22ft, the rows may be four and five respectively.

Long desks should be so arranged that the teacher can pass between the rows. Where dual desks are used this is not necessary, as the gangways give sufficient access.

(*b*) The desks should be very slightly inclined. An angle of 15 degs. is sufficient. The objection to the flat desk is that it has a tendency to make the children stoop. A raised ledge in front of a desk interferes with the arm in writing. The edge of the desk when used for writing should be vertically over the edge of the seat.

(*c*) Single desks are not necessary in an ordinary public elementary school and cannot be approved.

Sites and Playgrounds.

Rule 16.—Every school must have an open airy playground proportioned to the size and needs of the school, and the site should, if possible, have a building frontage in proportion to its area. A site open to the sun is especially valuable for the children and important in its effects on ventilation and health. The minimum size of site is, in the absence of exceptional circumstances, a quarter of an acre for every 250 children, irrespective of the space required for a teacher's or caretaker's house, or for a cookery or other centre. If the school is of more than one storey this area may be proportionately reduced; but a minimum unbuilt-on or open space of 30 sq. ft. per child should be preserved.

(*a*) In the case of a mixed school of large size, playgrounds should be separate for boys and girls, and should, where practicable, have separate entrances from the road or street.

(*b*) All playgrounds should be fairly square, properly levelled, drained and enclosed. A portion should be covered, having one side against the boundary wall. A covered way should never connect the offices with the main building; buttresses, corners and recesses should be avoided.

(*c*) An infants' school should have its playground on the same level as the school, and a sunny aspect is of special importance.

Infants' School.

Rule 17.—Infants should not, except in very small schools, be taught in the same room with older children, as the methods of instruction suitable for infants necessarily disturb the discipline and instruction of the other scholars. Access to the infants' room should not be through the older children's schoolroom.

(*a*) The partition between an infants' room and any other schoolroom should be impervious to sound, and there should be no habitual means of direct communication other than an ordinary door.

(*b*) An infants' school and playground must always be on the ground floor.

(*c*) No infants' classroom should accommodate, as a rule, more than sixty infants.

(*d*) A space in which the children can march and exercise should be provided. A corridor intended for this purpose should not be less than 16ft. wide.

(*e*) The babies' room should always have an open fire, and should be maintained at a temperature of not less than 60 degs.

(*f*) In infants' schools an allowance of 16in. per child at long desks will be sufficient. Dual desks should be 3ft. long.

(*g*) The accommodation of an infants' school is based upon the number of children who can be seated at the desks, provided that a minimum of 9 sq. ft. of floor space per child is obtained.

Rooms for Cookery, Manual Instruction, &c.

Rule 18.—As a rule a single room for cookery, or laundry-work, or manual instruction, or science, or drawing, will serve for more than one school if provided as a centre in a convenient position. Every such centre should have its own lavatory and cloak-room.

Large schools, or schools of an exceptional type, may sometimes require special rooms for their exclusive use.

(*a*) *Cookery.*—A cookery-room should be capable of accommodating twelve to eighteen at practice or thirty-six to fifty-four at demonstration at any one time. The larger size will require 750 super. ft. and 10,500 cub. ft. Provision for instruction in scullery work is necessary. The sink should be placed in full view of the teacher and children, and should be fitted with a cold-water supply and a waste pipe. There should also be a gallery or raised platform with desks to accommodate thirty-six to fifty-four children, according to the size of the room.

The floor space for practical work should afford about 20 sq. ft. for each scholar, and should not be encumbered with desks, cupboards or stoves. In cookery-rooms the ventilation needs special arrangements. Where a gas stove is used, it may be necessary to have a pipe fixed to carry off noxious fumes. The temperature should not be allowed to rise above 70 degs. The apparatus for lessons in cookery should include such stoves and other appliances as are usually found in the homes of the children.

(*b*) *Laundry Work.*—A laundry should be of simple construction, and entirely apart from the ordinary school buildings. The proper size for a laundry is about 750 sq. ft. It should have a gallery or raised platform with desks for forty-two children. Laundry tables should be large enough to allow at least 3ft. of space for each child when ironing. The ventilation of rooms for laundry-work needs special arrangements.

(*c*) *Manual Instruction.*—In its plan, arrangements, construction, lighting and ventilation, a manual instruction room should be modelled on a workshop rather than on a school. The construction should accordingly be simple. The roof may be either of lean-to or other ordinary form, according to circumstances. Its height at the windows in front of the benches need not be more than 10ft. The light must be ample. The temperature should not be so high as in an ordinary classroom. A flat ceiling is not as a rule necessary. Ample ventilation should be provided by inlets at a height of 5ft. from the floor, and by outlets at the highest point.

(*d*) *Science-Room.*—A room suitably fitted for elementary practical work in science may be provided for the use of one large or several contributory schools. Such a science-room should not as a rule contain more than 600 sq. ft. of floor space. It should be fitted with strong and plain tables, sinks, cupboards and shelves, and, where necessary, a fume closet. A proper supply of gas is necessary. In addition to the science-room, one of the ordinary classrooms may be fitted with a simple demonstration-table and gas and water supply. But a special lecture-room cannot be approved in an ordinary public elementary school.

(*e*) *Drawing Classrooms.*—A drawing classroom can only be sanctioned where it is likely to be used for a reasonable time every week by the scholars from one large or several contributory schools. A suitable size for such a room is 600 sq. ft. of floor space.

Higher Elementary Schools.

Rule 19.—For a higher elementary school accommodating from 300 to 350 scholars ten classrooms will generally be required, since every class should have its own classroom. No classroom should accommodate more than forty scholars.

(*a*) (i) The classrooms may be furnished with single or dual desks as may be desired. Single desks should be 2ft. long, arranged in pairs, with intervals of 2in. and gangways of 2ft.

(ii) If single desks are adopted, a classroom should have an area of about 16 sq. ft. per scholar. Classrooms fitted with dual desks need not be so large, but a minimum of about 13 sq. ft. per scholar will be required.

(*b*) Every higher elementary school should be provided with suitable laboratories.

(i) The laboratory accommodation must be sufficient to provide at one time for the largest class in the school.

(ii) There should generally be one laboratory for chemistry and one for physics.

(iii) A laboratory should afford 30 sq. ft. of floor space for each scholar; the minimum size will therefore be 600 sq. ft., but it is as a rule desirable that the laboratory should be somewhat larger. If, however, the laboratory accommodates more than twenty-five scholars a second teacher would be required.

(iv) Laboratories must be fitted with suitable tables, which must be well lighted; they should be properly supplied with gas and water. For chemical laboratories, sinks, cupboards and the necessary fume closets must be provided.

(v) A small balance-room may be provided if desired.

(*c*) (i) In addition to the classrooms and laboratories a higher elementary school may include a lecture-room, which should be fitted with (1) demonstration-table furnished with a gas and water supply and a sink, and (2) a fume closet. A lecture-room should have an area of about 750 sq. ft.

(ii) If no separate lecture-room is provided, each of the classrooms used by the third and fourth years should be fitted with a simple demonstration table.

(iii) A small preparation room, fitted with bench, sink, cupboard and shelves, and proper supply of gas, should be provided in a convenient position.

(*d*) A drawing classroom for the more advanced drawing is desirable. It should provide 30 sq. ft. of floor space for each scholar; the best size will be a room with an area of 750 sq. ft. If suitably lighted, the hall would answer for this purpose.

(*e*) Other special rooms for cookery, laundry-work and manual instruction should be provided in accordance with rule 18.

(*f*) A higher elementary school should be planned with a central hall; but no class, other than drawing, can be recognised in such a hall. Good dimensions for such a hall would be 50ft. by 25ft.

Teacher's House, &c.

Rule 20.—The residence for the master or mistress should contain a parlour, a kitchen, a scullery and three bedrooms, and the smallest dimensions which the Board can approve are:—

For the parlour, 14ft. by 12ft. of superficial area, 9ft. in height to wall-plate.

For the kitchen, 12ft. by 12ft. of superficial area, 9ft. in height to wall-plate.

For one of the bedrooms, 14ft. by 12ft. of superficial area, 8ft. if ceiled at wall-plate; or 7ft. to wall-plate and 9ft. to ceiling.

For two other bedrooms, 12ft by 8ft. of superficial area, 8ft. if ceiled at wall-plate; or 7ft. to wall-plate and 9ft. to ceiling.

(*a*) The residence must be so planned that no room is a passage room, and that the chimneys are not all on the external walls.

(*b*) There must be no internal communication between the residence and the school.

(*c*) Windows should be carried up as nearly to the ceiling as practicable.

(*d*) There must be a separate and distinct yard with offices.

(*e*) No dwelling-house should be built as part of the schoolhouse.

Loans.

Rule 21.—The Board do not entertain applications for loans in respect of expenditure incurred without their previous sanction, which is based on plans, specifications and actual tenders. Applications for loans should therefore include all the items in the first instance.

In order to secure due economy and the avoidance of confusion at completion, a provisional prime-cost amount of not more than 2½ per cent. may, if considered desirable, be included in building contracts in view of unavoidable contingencies, but the contract should contain a clause that no claim for extras can be even considered unless the work has been ordered in writing by the architect, and the order bears the countersignature of the clerk of the School Board.

Limits and Allowances.

Rule 22.—No loan of money can be obtained from the Public Works Loan Commissioners unless the whole cost of the school, exclusive of site, legal expenses, extra rooms for instruction authorised by the Code, and residences (if any), is kept within the sum of £10 per child accommodated.

(*a*) Additional allowances will be made on the following scale:—

For a central hall or corridor, 15s. per sq. ft.

For a cookery- or laundry-room, £1 per sq. ft.

For a manual instruction-room, 10s. to 15s. per sq. ft.

For a science-room, laboratory or drawing classroom, £1 per sq. ft.

For a teacher's room, 15s. per sq. ft.

For a teacher's house, £500 to £750.

For a caretaker's house, not more than £44.

For glazed bricks and fireproof floors (when necessary) allowance will be made according to the circumstances of the case.

Allowance for mechanical ventilation will only be made in districts where the air ought to be filtered before entering the building.

(*b*) No additional allowance will be made in respect of any room which exceed the maximum size specified in these rules, in so far as regards such excess.

(*c*) Whether the necessary loan be borrowed in the open market or not, extravagant plans cannot be approved.

The New Palace of Varieties, Northampton, has been opened. The builder was Mr. W. Beadsmore, and the architect Mr. H. J. Butcher.

WEIGHING A BUILDING.

By B. WYAND.

IT is very seldom that an architect in this country is called upon to weigh up an entire building; but in these days of steel and iron work and of huge structures supported entirely upon a few stanchions or columns, with the superincumbent weight imposed upon steel joists, girders and bressummers, it behoves every one concerned to have some acquaintance with the operation known as weighing. Far too many men work by rule-of-thumb alone, knowing from their everyday practice the required sizes for steel or wood girders and bressummers in ordinary positions and on ordinary jobs; but, after all, there is nothing like mathematical precision, and the few simple rules I give will be sufficient to ensure this with a minimum of trouble and but very little working out.

In weighing a building or a portion of a building the points to receive attention are —the weight of the carcase; the weight of the floors and their loads; the weight of roofs and coverings, and wind-pressure. In all cases the weight of any exceptionally heavy timbers or of any ironwork should be carefully added. I purpose first to give the data from which to calculate the weight of an entire building, showing afterwards how these may be applied to determine the weight to be borne by any particular portion.

Foundations.—The foundations of a building will not, except in special cases, need to be taken into account; for they should be proportioned to the weight of the building they have to carry, and should rest upon a sound and substantial bottom, their work being simply to spread the weight of the superstructure. The approximate weights of lime- and cement-concretes are 120lbs. and 137lbs. respectively to the cub. ft.

Carcase.—Material in walls and partitions must be measured, bringing brickwork to rods and stonework to ft. cube. In the case of ordinary timber partitions having approximately 4in. by 4in. posts, heads and sills, and 4in. by 2in. studs, the lowest figure given below will be found a safe one.

The following weights are from universally recognised tables, and may be absolutely relied upon. Where the figures given by different authorities have varied, I have in all cases taken the heaviest:—

Brickwork -	1 rod = 16 tons.
Stonework -	1ft. cube = 1 to 1½ cwt.
„ (average)	16 cub. ft. = 1 ton.
Timber partitions	1 sq. = 13 to 17 cwt.

In weighing stonework in large quantities it will be as well to ascertain the precise weight of the stone used. Mortar averages from about 90lbs to 115lbs. per cub. ft.; and as the average of stone is 140lbs. per cub. ft., stonework can be weighed as if solid without joint.

Floors and Ceilings.—It is obvious that in floors which have to carry live loads the actual weight of the floor itself is but a detail; and it would at first sight appear somewhat difficult to say exactly what proportion of the floors of a building should be calculated as bearing a live load. In the case of a warehouse or a factory, where every floor is in daily use, the full weight should certainly be calculated for; but in that of the ordinary dwelling-house, where perhaps only a couple of rooms are in occupation at any one time, it is somewhat different. The safest course to steer, however, is to give the full weight of live load to every floor in all cases, omitting, of course, the ground or basement floor when its weight is thrown directly upon the site of the building. The following are weights of floors:—

Weight of single-joisted floor -	1 sq. = 12 to 17 cwt.
Weight of framed floor - - -	1 sq. = 22 to 35 „

But the calculations below (which include both weight of floor and load) are those which should be used. It must be noted that these are taken at per *foot* super. and not per square:—

Dwelling-house floors -	per ft. super. = 1¼ to 1¾ cwt.
Public hall and workshop floors - -	do. = 1½ to 1¾ „
Warehouse, heavy goods store and factory floors -	do. = 2½ cwt.

Ceilings (as apart from floors), including lath and plaster and ceiling joists, work out at about 12lbs. per ft. super.

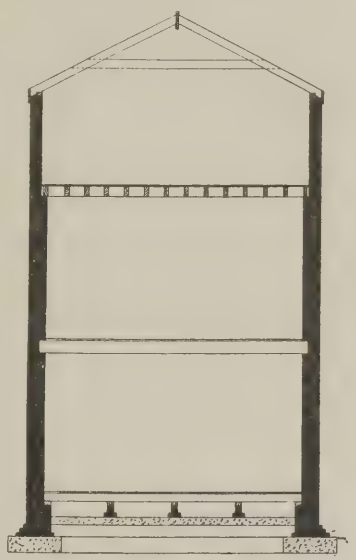


FIG. 1.

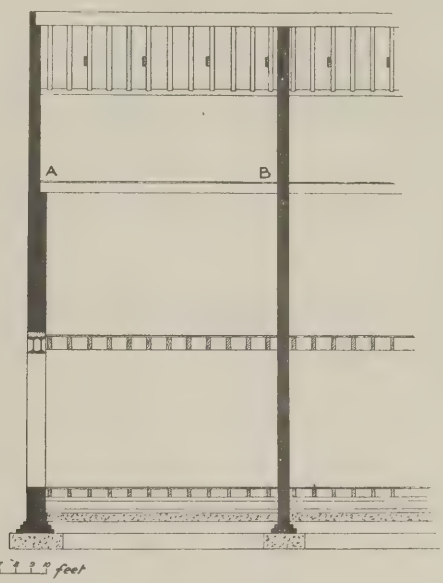


FIG. 2.

Roofs.—Taking the loads in roofs, without having any regard to wind-pressure, the following are the figures to work upon:—

	Per square of roofft.
Lead covering, exclusive of framing - - - -	7 cwt.
Zinc covering, exclusive of framing - - - -	1½ „
Corrugated iron, exclusive of framing - - - -	3 „
Tiles covering, exclusive of framing - - - -	9 to 15 „
Slates covering, exclusive of framing - - - -	8 to 9 „
¾in. deal boarding - -	2¼ „
1in. „ „ - - -	3 „
1¼in „ „ - - -	3¾ „
3in. by ¾in. slate battens -	1¼ „
Common wood rafters - -	2¾ „

There is no need, however, to calculate the items of the ordinary roof separately. The following will be near enough for all practical purposes:—

Timber framing for slate or tile roof - -	5 to 6 cwt. per square.

The weight approximately for iron roof-trusses, in lbs. (according to Hurst) = the square of span in feet, multiplied by ·7 for spans between 20 and 40ft., by ·8 for spans between 40 and 50ft., and by ·9 for spans between 50 and 60ft. The weight in lbs. of wood trusses = square of span in feet.

Wind-pressure.—The pressure of wind upon the roof, together with the weight of snow which could accumulate in the heaviest downfall, must always be calculated in weighing a building; for the walls have to support the strain and stress of these in addition to the actual roof covering itself. The question of calculating the pressure of wind upon walls in very exposed or exceptional situations does not come within the scope of this article.

Wind-pressure will, of course, vary largely with the pitch of the roof, and snow according to both pitch and climate, and no one figure will therefore be suitable to meet all cases.

	Per square of roofft.
For wind, vertically on roof, ¼ pitch - - - -	17 cwt.
Ditto, ⅓ pitch - - -	20 „
Ditto, ½ pitch - - -	22 „
Snow, according to climate, from - - - -	3 to 9 „

These are practically Hurst's figures, only he works them out at per ft. super. Young gives a general all-round figure.

Additional load on roofs for pressure of wind - -	36 cwt.

which should be sufficient, and amply so, in all cases for both wind-pressure and snow.

Sundries.—I have said that any exceptionally heavy timber or ironwork should be reckoned in, but as the weights of timber may be found in any book on building construction, and the weights of steel and iron obtained from any of the numerous catalogues of castings, I do not purpose hampering this article with them. I therefore proceed at once to the second portion—the application of the foregoing calculations to any particular portion of a building.

To Weigh Part of a Building.

The first example I give (see Figs. 1 and 2) typifies a case to be met with in everyday practice. The building, a dwelling-house, is to be converted into shop premises, and for that purpose the front wall below the first-floor must be removed and a bressummer thrown across. We have, therefore, to determine what weight this bressummer will have to bear. Fig. 1 is a cross-section taken through the building parallel with the street; Fig. 2, a section through the building from front to back.

On looking carefully at these sections we find—

(1) That the whole of the brick wall in the gable end will have to be supported upon the bressummer.

(2) That the first floor is carried on joists supported entirely by the side or return walls.

(3) That one end of the second-floor joists is built into the brick wall to be borne by the bressummer.

(4) That the feet of the roof rafters rest upon pole-plates, carried (like the first-floor

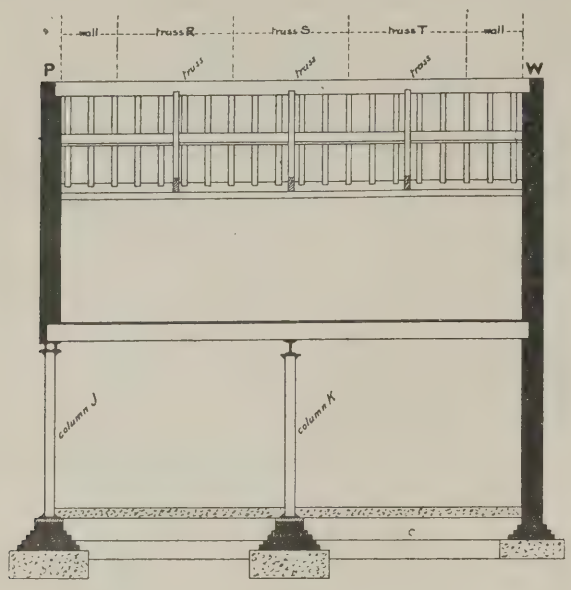


FIG. 3.

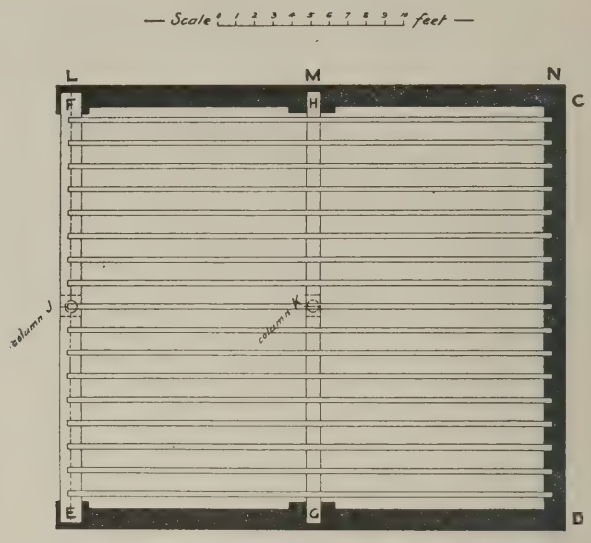


FIG. 4.

joists) upon the return walls. The roof is a collar-beam roof, without purlins, and the only portion supported by the gable wall is the small strip bedded upon the wall itself, of which it is scarcely necessary to take any account.

Now, to take these four items and calculate the weight of each.

Brickwork.—The gable wall supported by bressummer contains (exclusive of openings) 160 ft. super. of 14in. work and 150 ft. super. of 9in. work, or, in all, 260ft. of reduced brickwork. For our purpose this may be taken as one rod, which is, as everyone knows, 272ft. of reduced or 14in. work.

Floors.—The first floor, resting upon the side walls, does not enter into our calculations. The second floor, it will be seen by reference to Fig. 2, runs across a 9in. partition-wall in the centre of the building, and the portion bearing upon the front wall reduces itself, therefore, to half that which lies between these two walls, *i.e.*, half the floor between the points A and B, taken the full width of the building. The area of this floor is 17ft. by 15ft. 9in. = 268 sq. ft., of which one-half is to be borne by the bressummer.

Roof.—The small portion referred to above as bedded upon the wall contains about 21 sq. ft., or $\frac{1}{5}$th of a square. The pitch is $\frac{1}{4}$, and framing need not in this case be taken into account.

Summary.	tons.	cwt.
Brickwork, 1 rod - - - =	16	0
Floors (dwelling-house), 134 sq. ft. at $1\frac{1}{4}$ cwt. - - - =	8	$7\frac{1}{2}$
Roof (slates), $\frac{1}{5}$ square, at 8 cwt. - - - - - =	0	$1\frac{3}{5}$
Roof (wind-pressure and snow), $\frac{1}{5}$ square, at 36 cwt. - - =	0	$7\frac{1}{5}$
Total (disregarding fraction)	24	16

We find now that we require a bressummer to carry 25 tons over a clear span of 16ft. 6in., and turning to our tables of safe loads on rolled steel joists we find that a 10in. by 6in. is guaranteed to bear a load of $14\frac{1}{4}$ tons. We select two of these in preference to one of greater depth, as we have a 14in. wall to support above. Their combined carrying-power is $28\frac{1}{2}$ tons, leaving a good margin of safety.

In the next example (Figs. 3 and 4) one-fourth of the weight of the upper floor is thrown upon the wall C D, the remaining three-fourths being distributed over the bressummer E F and the girder G H; these, in their turn, being supported at either end by wall piers and at their centre by the columns J and K respectively.

We will take the easier calculation first—the weight to be borne by the girder G H. Here we have to consider the weight of floor only. This floor has a total superficies of 544 sq. ft., and is divided into two distinct portions by the girder, which has therefore to bear half the weight of each of them, or, in other words, half the total weight of the floor. Our calculation stands, then, as follows:—

272 sq. ft. warehouse floor, at $2\frac{1}{2}$ cwt. = 34 tons.

But it will be seen by reference to the plan that the span of the girder is halved by the column K; therefore the total weight to be borne by the girder can also be halved, and we reduce our load to 17 tons. The clear span for each girder is 10ft., and by our list of steel joists we find that a 10in. by $4\frac{1}{2}$in. would meet the case.

The calculation for the bressummer E F is somewhat more complicated, as wall, floor and roof have to be taken into consideration.

Brickwork.—The brickwork above the bressummer (after deduction for opening) contains 200ft. super. of reduced work = $\frac{3}{4}$ rod.

Floors.—As can be easily deduced from the figures given above for the girder G H, the bressummer bears one-fourth of the total area of floor (one-half that taken by the girder) = 136 sq. ft.

Roof.—The roof in this case is supported upon king-post trusses (R, S, T, Fig. 3), with purlins running the entire length of the roof and resting upon the walls at either end of the building. The trusses R, S, and T, as shown by dotted lines above roof (Fig. 3), each take one-fourth of the weight of the roof, the remaining quarter being equally borne between portions of wall at either end (also shown by dotted lines) and the walls P and W (Fig. 3). Walls P and W bear simply the weight thrown upon them by the ends of the purlins, and as the purlins may in this case be said—without abstruse calculation, which I have carefully avoided throughout this article—to split up the weight in any section, each of them takes one-sixteenth of the total. Put into tabular form, the weight of the roof is divided as follows:—

Trusses R, S, and T, each $\frac{1}{4}$ of the weight - - - - =	$\frac{3}{4}$
Walls P and portion of wall adjoining truss R ($\frac{1}{16}$ each) - - =	$\frac{1}{8}$
Wall W and portion of wall adjoining truss T ($\frac{1}{16}$ each) - - =	$\frac{1}{8}$
	1

The area of roof is 730ft. and wall, super. P's portion of $\frac{1}{16}$ = 45 sq. ft., or, in round numbers, half a square.

Summary.	tons.	cwt.
Brickwork, $\frac{3}{4}$ rod, at 16 tons - =	12	0
Floors, 136 sq. ft., at $2\frac{1}{2}$ cwt. - =	17	0
Roof (slates), $\frac{1}{2}$ square, at 8 cwt. =	0	4
Roof (framing), $\frac{1}{2}$ square, at 5 cwt. - - - =	0	$2\frac{1}{2}$
Roof (wind-pressure, &c.), $\frac{1}{2}$ square, at 36 cwt. - - =	0	18
Total - -	30	$4\frac{1}{2}$

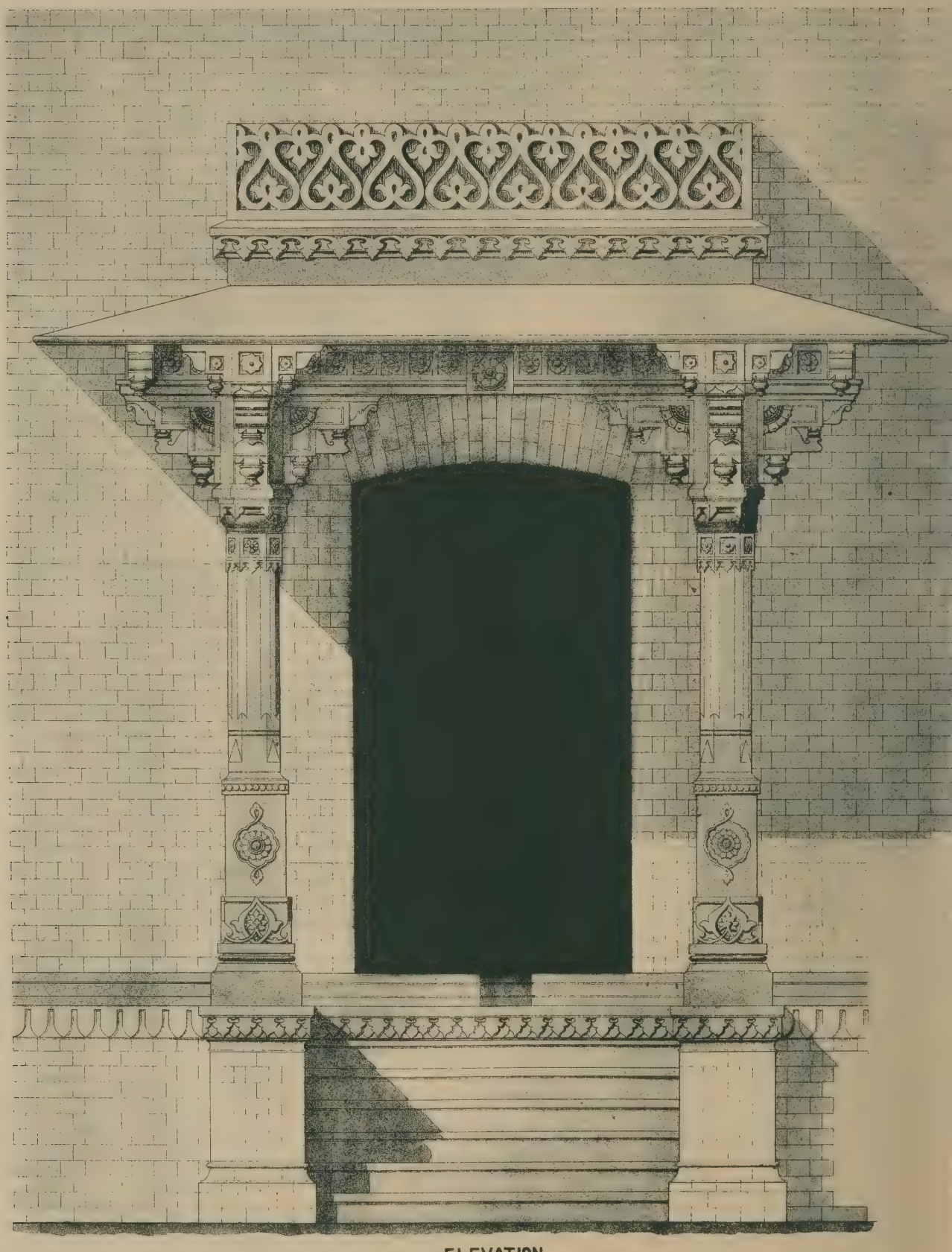
This can, as in the case of the girder, be halved, as the bressummer is to be supported in the centre by a column. The weight to be calculated for is then 15 tons, with a clear span of 10ft. An 8in. by 6in. would take this, but as there is a wall to be supported above we had better select two steel joists upon which to lay the stone for its reception. The nearest stock size appears to be 6in. by 5in., two of these together taking safely a load of 18 tons.

The columns J and K would each have to bear the same weight as the joists they support, viz., 15 tons and 17 tons respectively. I leave the reader to select these himself from his list of stock castings.

The Small Heath Baths, Birmingham, in Green Lane, Small Heath, erected at a cost of about £30,000, were opened recently. Mr. Henry Martin was the architect. Dark-red terra-cotta has been used, with pressed red bricks of the same colour. The interior walls are in glazed bricks. The roofs over the four principal bath departments are supported on cast-iron semi-circular arches of ornamental design, and constructed with lantern roofs above the same, filled in with leaded lights and tinted glass. A border of ribbed adamantine tiles is laid round the promenade of each swimming bath (next to the coping-stone of the bath) to prevent the bathers slipping thereon. The accommodation provided is as follows:—First-class swimming bath, men's first and second class private baths, men's second class swimming bath, women's private bath department, ticket office, basement, boiler-house and engine-house. The buildings have been erected by B. Whitehouse & Sons, contractors, of Monument Road; the ironwork has been supplied by the Griffin Foundry Co.; enamelled bricks by Edwards & Son, of Ruabon; terra-cotta and pressed bricks by Messrs. King, of Stourbridge; "Terrazzo" paving by Geary-Walker & Co.; lead-light glazing by O. C. Hawkes & Co.; casement gear-work by Henry Hope, Ltd.; sanitary fittings by Twyford & Co.; and granolithic work and plastering by the Birmingham Adamant Co.

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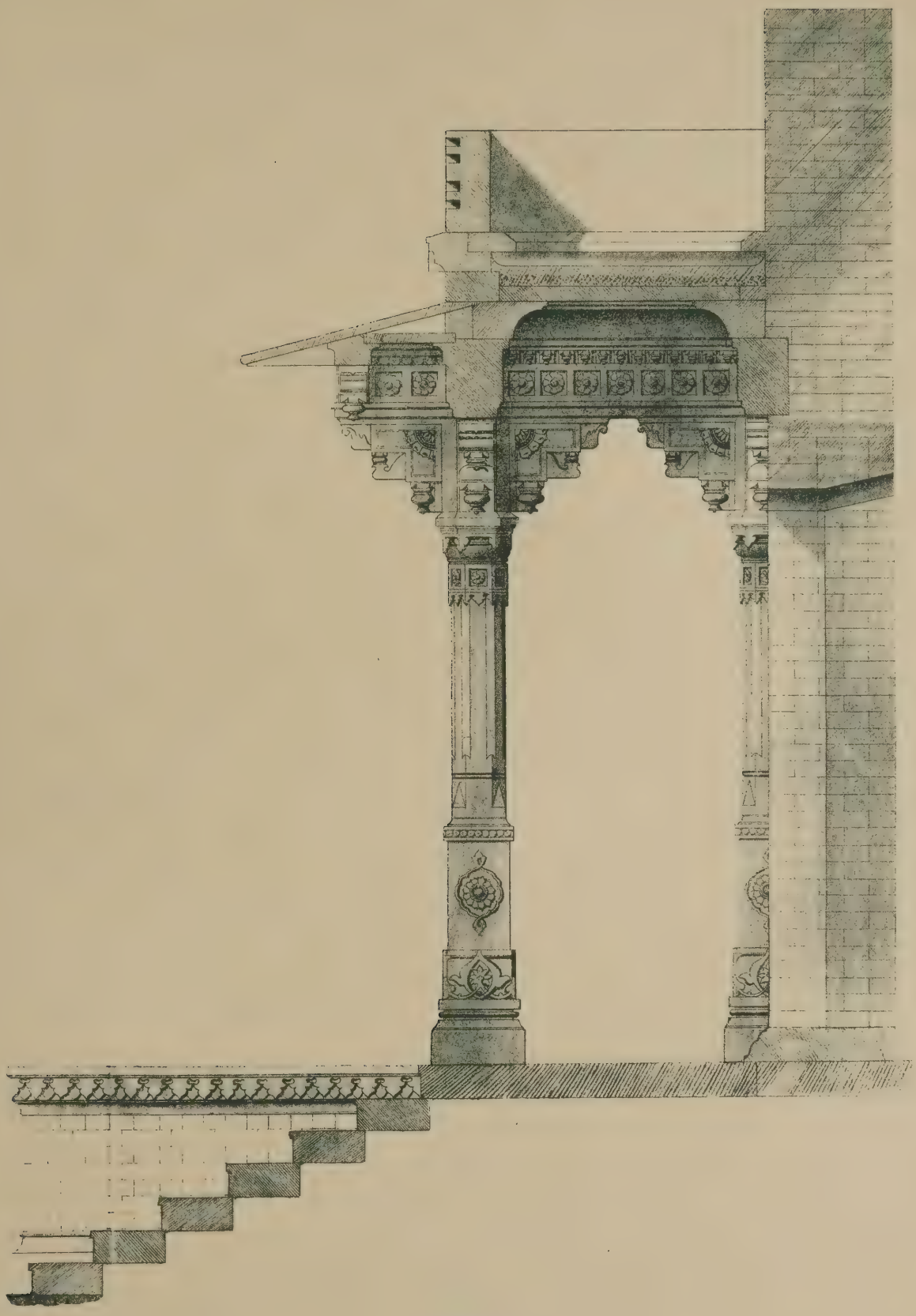
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Wednesday, November 19th, 1902.



ELEVATION

CHIEF'S COLLEGE, LAHORE, IND

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SECTION

"INK-PHOTO." R. J. EVERETT & SONS, 56 LUDGATE HILL, E.C.

SMALL PORCH. BHI RAM SINGH, ARCHITECT.

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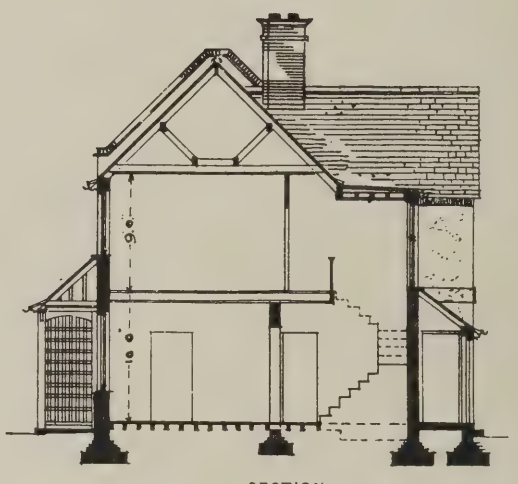
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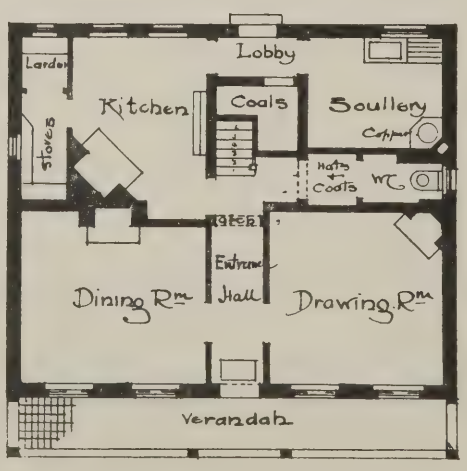
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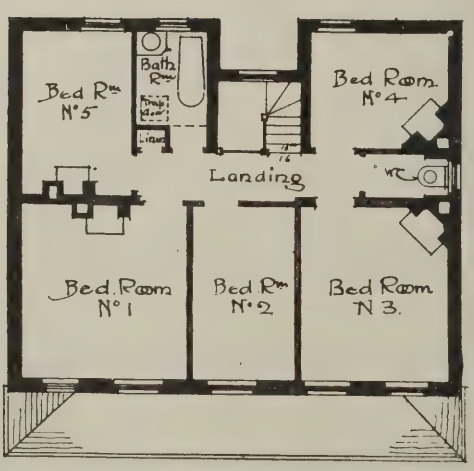
S.E. ELEVATION.



SECTION.



GROUND PLAN.



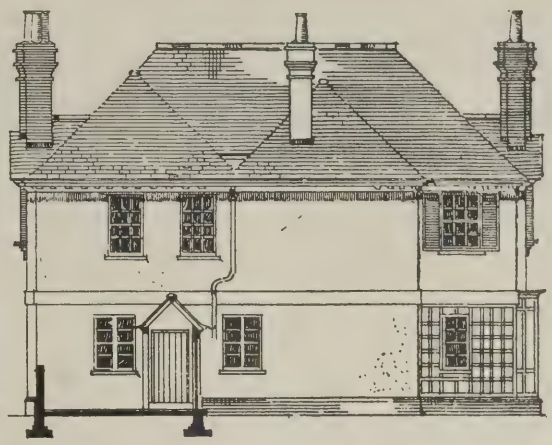
FIRST-FLOOR PLAN.

HOUSES ON THE MARINE PARADE, LEE-ON-THE-SOLENT, HANTS. H. L. FEDDEN, ARCHITECT.

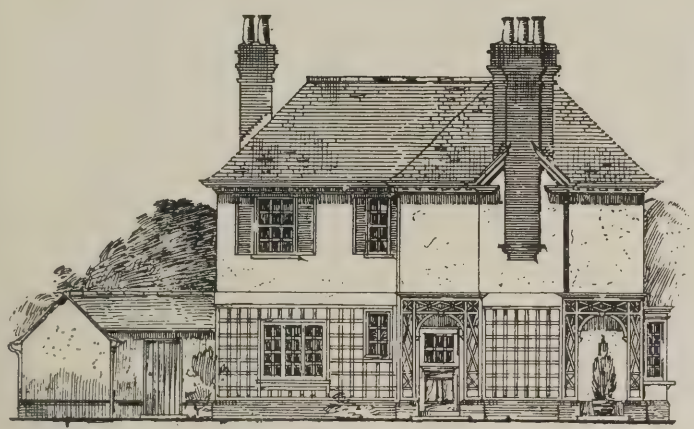
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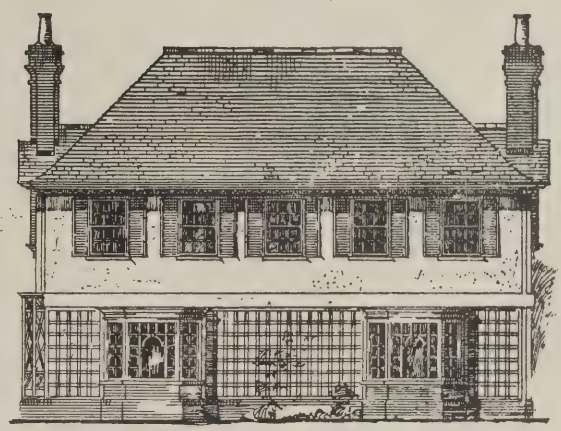
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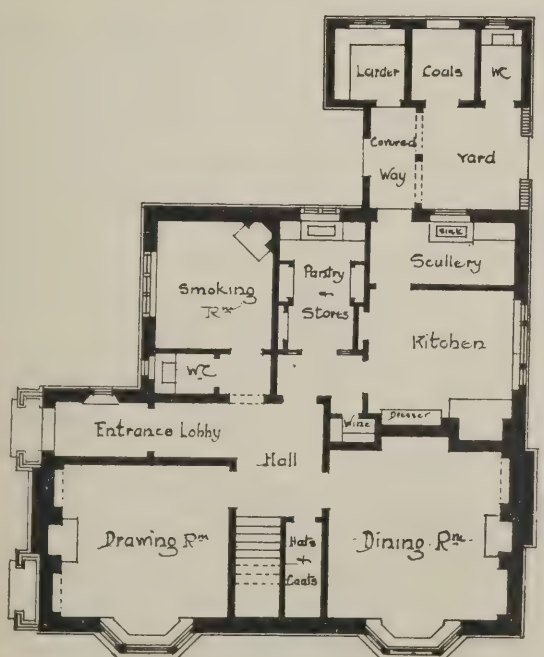
NORTH ELEVATION.



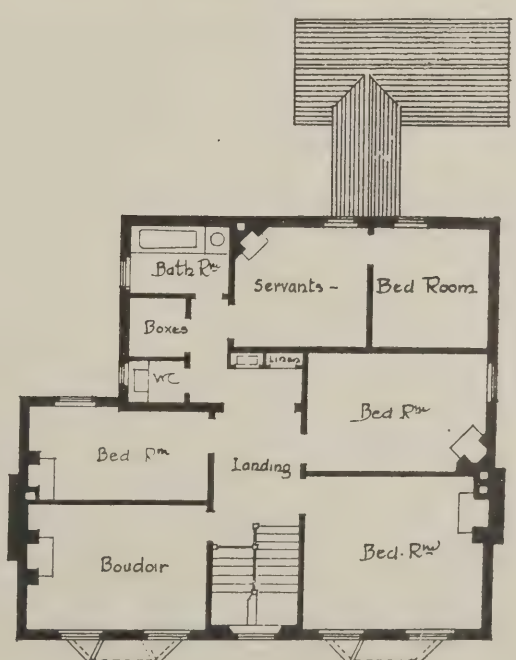
WEST ELEVATION.



SOUTH ELEVATION.



GROUND PLAN.



FIRST-FLOOR PLAN.

THE WHITE COTTAGE, CATERHAM, SURREY. H. L. FEDDEN, ARCHITECT.

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R.I.B.A.

THE IONIC VOLUTE AND THE PARTHENON FRIEZE.

A MEETING of the Royal Institute of British Architects was held on Monday evening at 9, Conduit Street, W., the chair being occupied by the president, Mr. Aston Webb, A.R.A.

The secretary announced that the Council had that afternoon decided to address a letter to the Ecclesiastical Commissioners expressing regret at the proposed demolition of All Hallows Church, Lombard Street (by Wren), with its peculiarly successful interior, and suggesting that it should be rebuilt on a suitable site, or the fittings brought together in some suitable building and there preserved in their entirety.

Mr. Penrose's Paper.

Mr. F. C. Penrose, F.R.S., Litt.D., D.C.L., then read a paper "On the Origin and Construction of the Ionic Volute," but first presented a copy of Dr. Waldstein's very handsome book on the "Hereon at Argos."

In opening his subject the author stated that several methods had been proposed for the construction of the Ionic volute by means of finding centres for quadrants of circles which may give some approximation to the appearance of the true figure of the Greek originals, none of them very successful. That of Goldman seemed to be the best, but it failed altogether to give the proper proportional expansion of the spaces between the lines, nor did the four jumps in each convolution at all represent the beauty of the continuous gradation of Greek originals. The origin of the volute, sought for in Assyria, Egypt, and elsewhere, the author derived from Greece itself, as the scheme he was about to explain enabled the exact figure of any true Greek example to be reproduced. In archaic Greek work, and particularly in the decorations of the Mycenean period, one constantly found the form of scroll in which every convolution of the spiral followed the first at equal intervals. This decorative scroll had no doubt been formed mechanically, as could easily be done by unwinding a string from a cylinder, forming a figure known as the involute of the circle. The question presented itself, How could a spiral having the character of the ammonite be produced? If the operator drew upon wood—or some other suitable material—the involute scroll, such as he had been accustomed to, and by shallow carving or otherwise raised the edges a little so as to form a helix and allow a string to be wound around those edges, and then unwound over a flat surface having a marker at the extremity of the string, he would produce the expanding spiral he was in search of. It did not give correctly the figure of the ammonite,* but it had all the requisites of proportional expansion and perfect variation of curvature at every point, and coincided perfectly with Greek volutes.

The author gave two examples from Ephesus—the first from the archaic temple of Diana. In all later examples known to the author the two central convolutions of the spiral, or nearly so, were interrupted and concealed by the circle which formed the eye of the volute. In this case, however, the curve which would be evolved from the helix was allowed to extend from the central origin of the volute up to its junction with the abacus. By drawing a straight line through the central origin to the circumference on both sides, a calculation could be made to find a helix on the involute principle, and this, when worked out, would be found to agree not only with given points on the circumference, but to correspond with the inner convolutions also, and could therefore be extended to the whole of the volute. This correspondence clearly showed that the method of the involute spiral was that which was used by the architect employed by Crœsus.

The volute of the later temple at Ephesus, the second example, had almost the same curvature, the only difference being in the surface moulding and the circular eye which occupied its centre. In the majority of the examples known to the author the eye of the volute was a separate piece from the main mass of the capital, and was formed by some kind of boss of marble or metal inserted into a circular hole prepared for it, centred very nearly on the place of the pivot of the helix, and always of sufficient diameter to receive it. Such an arrangement would have had obvious convenience for fixing the helix.

The volutes in all the examples in Asia Minor were probably described by means of helices similar to that mentioned above. But the Athenians demanded greater variety than that spiral so used could supply, and gave to their volutes additional expansion in the exterior convolution; still, however, working so by means of the involute form, but differently treated. This applies to the Propylæa, to the three orders of different size in the Erechtheum, and to the temple of Nikè. It was also used in the temple on the Ilyssus, recorded by Stuart; and in the provincial temple at Bassæ. With the exception of this variation in the exterior convolution in Athenian structures, the same general scheme seems to have been employed in all true Greek examples, and the only liberty of choice given to the designers lay in the proportioning of the width of the volute to the upper diameter of the column, and in that of the interval between the convolutions of the generating helix, in the size of the eye compared with that of the volute. This would have some effect upon the number of convolutions to be used, which vary in the cases the author had examined from four (that is, measured from the origin) at Priene to two and a quarter in the case of the Erechtheum. The intervals of the helix would determine all other variations. The variations in the above-mentioned elements, as found in certain examples, were shown by the author in a table of calculations. The two different descriptions of volute he termed the Asiatic and the Attic.

The author next gave a description of the helix for describing the Greek volute, and detailed the method of its employment both in the Asiatic form and the Attic variation, illustrating by various diagrams and giving a table of calculated measurements. Mr. Penrose proved the accuracy of his method by showing that examples of volutes on the east portico of the Erechtheum and at the Propylæa, worked out in the way he had described and from data given by the table, were found to be in exact agreement with the records made by Stuart of the Erechtheum and by Mr. T. J. Willson of the Propylæa.

Before concluding, the author gave an interesting description, illustrated by diagrams, of the helix (one from which a string may be unwound so as to produce the volute) employed by him in drawing the models exhibited, and suggested the adoption of a similar contrivance where a Greek volute had to be carved.

Dr. Murray's Paper.

Dr. A. S. Murray, F.S.A., Keeper of Greek and Roman Antiquities in the British Museum, then read a paper on "A Fragment of the Parthenon Frieze." A year or more ago he received from a clergyman a copy of a Greek inscription on a piece of marble in a rockery in Essex. It turned out to be an inscription which had been missing since about 1771, in which year it was published in the "Archæologia of the Society of Antiquaries." After briefly describing the story of its adventures, Dr. Murray said that two or three months ago a gardener, in digging beside the old rockery, came upon what has turned out to be a fragment of the Parthenon frieze. This fragment does not appear in any drawings made previous to Lord Elgin's time. It had fallen before then, most likely during the gunpowder explosion within the Parthenon in the seventeenth century. The want of any play between the slabs, owing to the excessively fine joints of the frieze, was sure to be a source of mischief should the building be shaken or subside in its foundations. This, no doubt, is the reason why so many of the corners of the frieze are wanting—possibly there may be some more of them in English gardens.

Considering the facts that a Mr. Jones, of Finchley, possessed several fragments of bas-relief, as well as the inscription, and that Stuart had sent home some such fragments with it, Dr. Murray was inclined to think that this fragment of the frieze had reached Essex along with the Greek inscription, and had been set home with it by Stuart.

Dr. Murray showed a photograph of the slab to which the Essex fragment belonged, which represents a part of the cavalcade of young Athenians who rode in the Panathenaic procession through the streets of Athens every fifth year. A photograph, with the fragment added in its proper position, was also shown. In conclusion Dr. Murray drew attention to some specially interesting details of this portion of the frieze, and to the skilful devices employed by the sculptor to avoid monotonous repetition and arrest the attention of the spectators.

A vote of thanks was proposed by Mr. H. H. Statham, seconded by Dr. Waldstein, congratulating Mr. Penrose on his valuable contribution and Dr. Murray on his most important discovery. Dr. Waldstein expressed the belief that there must be many other fragments of fine Greek art now hidden in the grounds of houses throughout the country. He also said that, however important were the recent discoveries of Mycenean and similar prehistoric work, we should never forget that all these should be looked at as leading up to the perfection of the Parthenon. Professor Beresford Pite, Mr. Thomas Blashill, Mr. Phenè Spiers and Mr. Aston Webb also spoke. The meeting then terminated.

* Formed on the principle of the equiangular spiral, which is drawn by the heliograph, an instrument exhibited by Mr. Penrose at the Great Exhibition of 1851.

A new Church at Brockhampton.—The old parish church of the Holy Trinity, Brockhampton, near Ross, was situated in the grounds of Brockhampton Court, and a new church has been built in the village. The east window of stained glass is by Mr. C. W. Whall, while the handsome tapestry hangings on either side the altar were produced at the William Morris looms from designs by Sir Edward Burne-Jones. Prof. W. L. Lethaby was the architect.

A German Triptych.—The German painter Wilhelm Pape has, by order of the Emperor, painted a magnificent triptych, now in the Hohenzollern Museum in Berlin. The central panel represents the Emperor as Protector on the Throne of the Grand Master of the Order of St. John. On the right is Prince Albert of Prussia, Regent of the Duchy of Brunswick and Grand Master of the Order. The throne is in the chancel of the church of the Order at the castle of Marienburg, which has been reconstructed under the supervision of the Emperor. Round the throne in the stalls of the chancel are the members of the Order in historical costume. One side panel represents the entry of the Protector, Grand Master, and members of the order into the restored castle; the other depicts the entry of the Empress, her suite and foreign members of the order. The frame is modelled and gilded in Gothic style.

Builders' Notes.

The Directors of the Royal Exchange Assurance have appointed Mr. E. H. Britton and Mr. E. B. Hiles, joint managers of the fire department of the Corporation, in the place of Mr. J. Heron Duncan, resigned.

The Wakefield and District Master-Builders' Association held a meeting last week, when the following were nominated to be elected officers at the annual meeting of the Association in December:—Messrs. Henry Fallas (Horbury) president, and J. Pashley and G. Scholey auditors.

English and Scotch Building Construction.—Referring to Professor Gourlay's lecture on "The New Teaching Regulations" before the Glasgow and West of Scotland Technical College Architectural Craftsmen's Society (see p. 208 of last week's issue) "Scot" writes: "In his (Professor Gourlay's) sheets and in his lectures the English method alone is followed, though the Glasgow mode would be infinitely more useful to us in Scotland."

The Leeds Master-Builders' Association held its annual dinner last week. Mr. George Wilson, of Headingley, the newly-elected president, took the chair. Mr. W. Nicholson, in reply to a toast, said there was a feeling in the building trade that the architect should not be the sole arbitrator. If the Association were determined, and the architects were approached, he thought they would agree to an arbitration clause being inserted in agreements. The present arrangement was not fair, it was not equity, and it very often acted greatly against the builders.

The Birmingham Master-Builders' Association held its annual meeting last Thursday under the chairmanship of Mr. Albert S. Smith. The annual report remarked upon the depressed condition of the building trade during the past year, and stated that the new rules as to operatives had been amicably arranged and appeared to be working satisfactorily. On several occasions during the year deputations from the Association had waited on members of the Corporation and obtained modifications and alterations in the Corporation by-laws and the Omnibus Bill, which were considered essential in the interests of the trade. Mr. Albert S. Smith was re-elected president, and Mr. J. Barnsley was re-elected vice-president. Mr. George Twigg was re-elected treasurer, and Messrs. T. Johnson and J. S. Surman auditors. Mr. Ernest J. Bigwood was re-elected secretary. A dinner followed and was largely attended. Mr. A. S. Smith occupied the chair. The toast "Success to the Birmingham Builders' Association" was proposed by Mr. A. Harrison, president of the Birmingham Architectural Association. The chairman responded. Mr. John J. Moffat gave the toast "The Architects and Surveyors," and Mr. T. Cooper and Mr. A. Rowse responded.

A New Brickmaking Process.—Messrs. Eastwood & Co., of Belvedere Road, Lambeth, gave a demonstration recently at Conyer, near Teynham, of their new process of making, drying and burning stock bricks. It has long been felt that if the stock brick is to survive a cheaper manufacture, and more particularly some mode of producing a larger percentage of best bricks, must be discovered. Messrs. Eastwood claimed to have solved the difficulty of making stock bricks by machinery instead of by hand. Another difficulty was to get the bricks, after being made, thoroughly dry. By the new process the bricks are thoroughly dried, ready to be burnt. The greatest problem, however, was the burning. In the new process absolute uniformity is obtained; there is no waste, and 85 per cent. of stocks has been turned out. When the system is perfected it is expected that the percentage of good sound bricks will be from 92 to 97. The system adopted by Messrs. Eastwood & Co. is that of Messrs. Möller & Pfeifer, of Berlin. The brick machine is capable of making 40,000 bricks per day, as against the average 7,000 or 8,000 made by a moulder. At present it is only run to make 20,000 a day. The dryer has three tracks, drying 20,000 bricks per day in all. These bricks are dried in twenty-four hours, passing through temperatures varying from 45 degs. to 200 degs. Fahr. In brief, with the process introduced by Messrs. Eastwood & Co. bricks may be made, dried, burnt and delivered in less than a week. By the old process, and only with a very favourable season for drying, it takes three months.

Views and Reviews.

Lettering in Ornament.

This new book by Mr. Lewis F. Day deals with letters as ornament and is a companion volume to his "Alphabets Old and New." The author makes constant reference to an interesting thesis—that it is not a requirement for lettering in ornament to be read like ordinary print, and that the designer may consequently make it involved, or at least obscure, if this enhances its effect as decoration. "Plain reading is by no means the invariable purpose of lettering in ornament, and it is a mistake to suppose that it ought always to be read at sight, or readable at all, except to those whom it may concern." This is a sound basis, but there is just as much danger of going to the extreme of some artists as there is of making the trade model the be-all of everything: for we call to mind some examples by one or two celebrated artworkers who prided themselves on knowing what lettering really should be, and we certainly cannot admire the effect of their methods. Mr. Day is too much in touch with modern practice to take an extremist view in these matters, but we think he is rather too hard on the modern publisher, whose "idea of lettering is usually type, to which he would have the artist conform most strictly." His own publisher in this instance has produced a well-printed book with the ordinary Roman style of type, which makes a good page and is very legible: and we rather doubt whether the result would have been so satisfactory had the artist had his fling with the letters. But, while holding this view, we heartily agree with the author that lettering might be much more extensively employed in our work, whether it be architectural detail, mosaics, borders or anything else.

"We are a matter of fact people, and the practical view we take of lettering hinders us from making full use of it in ornament. Our attitude towards the alphabet is somewhat too respectful. If we could bring ourselves to play with letters we might easily reduce them to ornament."

The book itself is an admirable one, and the author's clearness of thought and expression makes it most readable and instructive. Moreover, it is illustrated by nearly 200 examples ranging over a very wide field: and these are invaluable to the text, as they show at once what has been done by the artists of many nations, from the "barbaric" work of Iceland to the most delicate of French art lettering. Architects especially should find the book of considerable use. The revival of lettering in the ornamentation of buildings would add much to their interest.

"Lettering in Ornament," by Lewis F. Day. London: B. T. Batsford, 94, High Holborn, W.C. Price 5s. nett.

The Royal Hospital for Incurables at Putney Heath has been enlarged by the addition of a new wing for twenty beds, at a cost of £8,300.

New Patents.

These patents are open to opposition until December 29th.

1901.—Machines for Concrete Bricks.—23,666. T. & W. L. Cole, St. Ann's Road, Burdett Road, Bow, E., and the Acton Concrete Partition Co., Ltd., of 76, Finsbury Pavement, E.C. The mould is filled from a hopper, and a headpiece is placed on it. It is then shaken to solidify the material and get rid of any air-bubbles. The mould is next placed in a casing which holds it together whilst the brick is being pressed, after which the mould is opened out so that the brick can be removed on one of its sides.

Stamped Wood.—24,406. F. A. Brausil, 7, Strohmayergasse, Vienna. The parts to be stamped are painted with a mixture of borax, asbestos and water-glass in milk, and dried. The wood is then passed under a matrix heated to 140 degs. C. and there pressed; the fat in the milk and the asbestos making the fibre supple, while the water-glass and borax harden it when cooled.

Expansion Joints for Water Mains.—25,827. H. Bewlay, of T. Piggott & Co., Ltd., Atlas Works, Birmingham. The joint consists of a corrugated steel tube forming part of the main. The corrugations extend beyond the ordinary bore of the pipes.

1902.—Metal Sheet Piling.—18,433. L. P. Friestedt, Decarborn Street, Chicago, U.S.A. The piling consists of a series of channel beams having interlocking flanges, with Z-bar bracing members.

Rulers.—20,671. C. Lawrence, Norristown, Montgomery, Pa., U.S.A. The rule is made of thin metal with a strip of rubber fixed to one face (for the purpose of giving an easy grip on the paper), while an ink gutter is formed at each side to prevent blotches occurring.

The following specifications will be published to-morrow, and will be open to opposition until January 5th. A summary of the more important of them will be given next week. The names in italics are those of communicators of inventions.

1901.—17,243, Bailey-Denton, water-carts. 21,667, Jones & Jones, cranes. 23,041, Hollins & Amendt, safety devices for hydraulic or other lifts. 23,732, Sugg, lamps for outdoor incandescent gas lighting. 23,859, Barnes & Mawer, draught-preventor for doors, &c. 24,072, Burn, treatment of impure clay for bricks. 25,818, Meyer, hinges. 25,893, Graham, sewage apparatus. 26,681, Biggs, pipe joints.

1902.—71, Stringer, piles. 2,385, Lake, (*Hundeshagen*), grinding mills. 3,402, Newton, artificial marble, &c. 7,959, Ainley, door-locks. 13,101, James (*Pedrick & Ayer Co.*), pneumatic hoists. 14,662, Elam, reversibly suspended flexible sheets such as maps, &c. 14,989, Ranke, gas-heating devices for baths. 17,094, Davies, Kent, Stewart & Ewing, electric wall- or floor-coupling sockets. 17,150, Pawel, apparatus for loosening the soil in earthworks. 17,977, Casson, organs. 18,306, Ross, double-current ventilator. 18,475, Polman, door-hinges. 18,495, Wicks, construction of mould wheels for type-casting machines. 18,496, Geldard, appliances for testing butter for water. 18,589, Kempshall, golf and other balls. 18,638, Thomson, Maxwell, Laidlaw & Hill, securing covers of sewer manholes. 19,168, Postley, devices for stopping-up gas mains. 19,793, Lindewirt, automatic door-closing devices. 20,076, Kirkow, door-closing apparatus. 20,188, Kieselstein & Czermak, artificial stone and marble. 20,649, Simpson, sash-fastener. 21,127, Hick & Hick, fixing slates on roof.

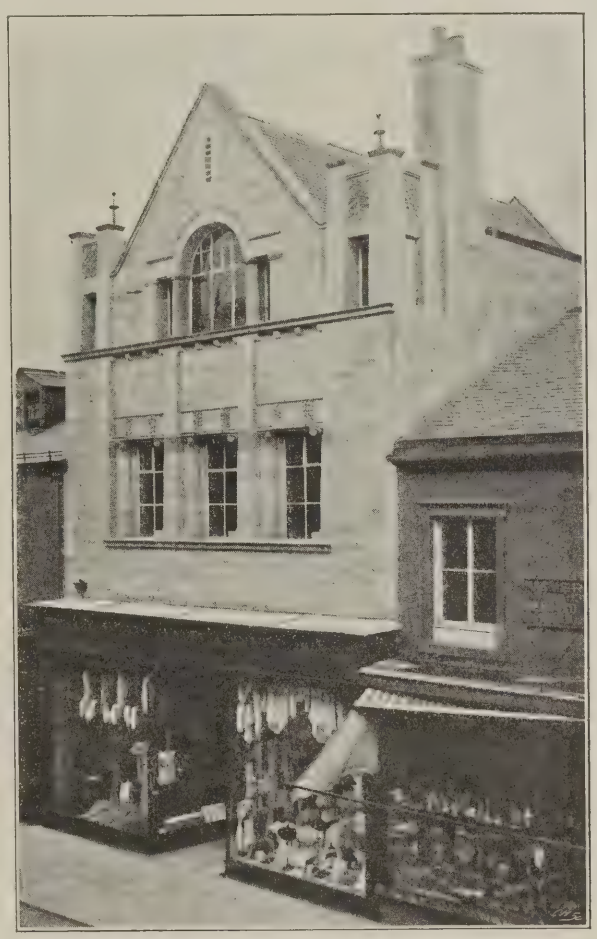
Law Cases.

Alleged Extensive Brick Frauds.—At Southend last week William Allen, of Delaford, Southend, described as an architect, and William Hann, Abbey Road, Bush Hall Park, Middlesex, were charged with an extensive series of brick frauds on manufacturers all over the country. Allen had other addresses at Whetstone, Middlesex, Enfield and Great Bedford Row, London, and by representations that he was building at Wickford, and by furnishing Hann's name as that of surveyor for reference, bricks were obtained to the value of over £1,000 from firms at Peterborough, Croydon, Somersham, Whittlesea, Weldon and Corby. The bricks on arrival in railway trucks were resold, under instructions, by a local auctioneer at much under the original value. Millions of bricks were thus obtained and disposed of, and evidence was given with a view to prove that Allen and Hann divided the proceeds between them. After hearing more than thirty witnesses the Court again adjourned.

Widths of Pavements.—At Linlithgow recently an appeal was heard at the instance of Mr. William Russell, merchant, Bathgate, against a requisition of the Bathgate Town Council requiring him to construct a pavement 13ft. 9in. wide, being the width of the footway between the building line and the kerb, in front of his property in Marjoribanks Street. Appellant pleaded that a pavement of 13ft. 9in. was vexatious, and unreasonable for the burgh of Bathgate, and that a 6ft. pavement which had been offered was amply sufficient. For the Town Council it was averred that pavements of 13ft. 9in. were quite common in burghs of the size of Bathgate, and that even in Bathgate pavements of nearly that width were in existence. The Sheriff indicated that he would not interfere with the discretion of the Town Council in the matter, and stated that he would write out his decision specifying his reasons for coming to that conclusion.

London Hospital New Wing: L.B.A. Tribunal of Appeal.—The Tribunal of Appeal appointed under the London Building Act considered an appeal at the Surveyors' Institution last week by the Hon. Sydney Holland, chairman of the Governors of the London Hospital, against a refusal of the committee of the L.C.C. to sanction the plans for the erection of a wing to the hospital, under section 78 of the Building Act. Mr. J. W. Penfold was in the chair. From Mr. Holland's opening statement it appeared that originally the plans for the new wing were sanctioned by Mr. Crow, the district surveyor for Whitechapel, but subsequently, on May 24th, he qualified his approval by letter. Mr. Holland submitted that such qualification was in certain respects invalid. Counsel for the L.C.C stated that, after giving his first approval, Mr. Crow discovered that in the main wing there were certain ominous settlements. As a public official, responsible for anything that might happen in a large public building of that kind, Mr. Crow drew up certain stipulations with reference to the new wing, having regard to the utilisation of certain old walls. They provided for the strengthening of the walls to meet the very heavy bearing strain involved by large water-tanks and the general structure. Moreover, the walls which it was proposed to utilise in the extension were out of plumb, and the axis pressure was not coincident with the height. Another stipulation laid down was that the old and defective brickwork should be taken out of the old piers and replaced by new material. After hearing evidence, the chairman intimated that the tribunal would inspect the works before giving their decision.

Tunnelling in Regent Street.—The case of *Mappin Brothers* v. *Liberty & Co.* was heard last week in the Chancery Division of the High Court of Justice. The plaintiffs sought to restrain an alleged trespass by the defendants. The plaintiffs are the lessees of a shop (No. 220) on the east side of Regent Street, with vaults going a short distance under the roadway. The defendants are the lessees of Nos. 218 and 222, both leases being held from the Crown. Last year the defendants proceeded to tunnel out in front of No. 218 along the front of No. 220 and back into No. 222, and established a showroom in the space so obtained. The plaintiffs' contention was that so far as their leasehold interest was concerned the tunnel was constructed on their land. The defendants denied that any part of the soil in Regent Street was included with the plaintiffs' lease, and stated that the tunnel connecting their premises was constructed with the licence of the Crown. The Attorney-General had been served and had put in a defence to the action, and it was urged on his behalf that the property belonged to the Crown, and the soil of Regent Street, so far as the middle of the road, did not pass under the lease, and was not vested in the plaintiffs, but remained in the Crown. The tunnel was constructed by the defendants under licence, the defendants paying a yearly rent for the privilege. The Attorney-General was willing to be made a party in order to have determined the question whether the soil of the proposed Regent Street of 1823 being vested in the Crown passed to the plaintiffs under their lease.—His Lordship in giving judgment said he held that the soil of Regent Street did not pass under the plaintiffs' lease, dismissed the Crown from the action, and found for the defendants.



BUSINESS PREMISES, JAMES STREET, HARROGATE.
ARTHUR J. PENTY, ARCHITECT.

Surveying & Sanitation.

Street-Widening in Hackney.—A petition bearing over 6,000 signatures is to be presented to Hackney Borough Council urging the widening of Homerton High Street, at an estimated cost of £20,000.

The Surveyors' Institution held its first ordinary general meeting of the session last Monday week. The president, Mr. Arthur Vernon, in his opening address congratulated the members on the flourishing state of the Institution. There were now on their roll a total of 3,424 members, drawn from almost all part of England, Scotland, Wales and Ireland, and including twenty Colonial Fellows. Of this total no fewer than 1,433, omitting students and ordinary associates, had qualified by examination. The Council had been able to accumulate invested funds to the extent of £10,000; the Institution was free of debt, and they were in receipt of an income equal to the annual outlay. There were at least four things absolutely necessary to every thoroughly qualified surveyor—knowledge of his art, and the basis of the law, science and practice of his profession; the study of the application of such knowledge to practical work; the cultivation of a sound judgment, combined with tact and good manners, in dealing with the problems that came before him; and the strictest honesty and rectitude of conduct, with a fastidious regard for professional etiquette and the best traditions of the profession. The Institution had often been asked to adopt a scale of fees for professional work, but experience had invariably shown this to be undesirable. Reviewing the present position of the land question, the president said the principle of assessment on farm lands was still grievously unfair, but he was of opinion that the landed interests of the country were in a better condition now than they were ten years ago, though reform was greatly needed in the system of valuation for purposes both of local and imperial taxation. In spite of present difficulties and depression, he believed in the land and in its future appreciation and increasing attractiveness to the investor.

OUR NEW COMPETITION.

THE time for sending in designs for our new competition—the remodelling of the front of No. 182, Fleet Street, London—is near at hand. As already stated, designs are to be sent in between November 25th and December 1st, addressed to the Editor of the BUILDERS' JOURNAL, Effingham House, Arundel Street, Strand, W.C. Full particulars of the competition were given in the issue for October 22nd. Prizes of £5 5s., £3 3s. and £2 2s. are offered.

The Business Premises at Harrogate illustrated on this page are built of local stone from designs by Mr. Arthur J. Penty, of 1, Arundel Street, Strand, W.C. The carving is by G. W. Milburn, of York, and the roof is covered with red tiles. There is a showroom on the first floor, workroom above, and draper's premises below.

Enquiries Answered.

The services of a large staff of experts are at the disposal of readers who require information on architectural, constructional or legal matters. Questions should in all cases be addressed to the Editor. The querist's name and address must always be given, not necessarily for publication.

Pumping Water for a Villa.

NEWBURY.—J. J. G. C. writes: "I want a hand-pump to raise water for a villa. Water is found 20ft. below the surface. The villa is to cost £300, so the pump must not be an expensive one."

The Abyssinian tube well is a cheap and good form, but of course would have to be renewed after a number of years. You will find considerable information and specification clauses for wells in the "Well Sinker" section of "Specification No. 4."

Asylum and Hospital Planning.

LONDON, N.—TRAMP writes: "Where can I obtain the conditions, regulations or by-laws issued by the Asylums Board governing architects' designs for asylums and hospitals?"

Rules for the planning of hospitals and asylums have been issued by the Local Government Board, and are published by the King's Printers, Messrs. Eyre and Spottiswoode, East Harding Street, E.C.

Party Walls in the Provinces.

CARLISLE.—BORDERER writes: "Kindly state the law relating to party walls in the provinces. I am familiar with the law applying to London, but find that the practice in the country is different."

In the construction of party walls to new buildings the by-laws of the local authority respecting the thickness of party walls, construction of parapets to same, recesses, &c., must be complied with. These regulations are usually based on the Model By-laws issued by the Local Government Board. Where alterations to existing party walls are contemplated, such as raising, strengthening, cutting into, pulling down, rebuilding, &c, all the rights and easements of the adjoining owner must be carefully respected. Before disturbing any existing party wall, proper notice should be given to the adjoining owner, together with all necessary particulars as to the nature of the proposed alterations, and his consent obtained in writing. So much, however, depends on the local and special conditions of each case that the advice of a solicitor should be obtained under such circumstances. T. E. C.

A Client and his Architect.

TUNBRIDGE WELLS. — J. R. H. writes: "I asked an architect to prepare plans for two houses to cost between £650 and £700 the pair. He suggested that I should build them myself, and that he should overlook them. He told me I could get my brickwork done at £3 15s. to £4 per rod; but it has cost £7. I accepted his plans and started work. His measurements proved, however, to be wrong, nine window-frames having to be re-made; and the houses are so planned that they will cost £900 instead of £700. I particularly asked for light rooms, instead of which they are very dark, some windows being 3ft. 3in. by 1ft. 3in., and others much smaller. The architect went away on his holiday without informing me, and stayed away a month, so that I had to engage another man to carry out the work. The terms agreed for plans and supervision were 5 per cent. Am I bound to pay him, or can I claim compensation?"

We do not think you could recover damages from the architect, for he is entitled to 5 per cent. for the preparation of the plans and slight supervision to see they are efficiently carried out. You cannot expect him to be responsible for the cost or for any waste you may have made, as he had not the management of the job. You should have engaged a competent foreman and clerk of works. If you had had the work done piecework you could have got the brickwork done for £4 a rod. The question of the window-frames we cannot understand. If you followed the plans there could surely be no mistake. A builder would have had the frames made to fit the openings after the latter were completed. After all you approved the plans, and the matter of lighting can easily be judged by anyone experienced from the size of openings.

Submitting Plans to Urban Councils.

BURY.—REX writes: "Is it necessary that the plan of a proposed building submitted to an urban district council should be either approved or disapproved within a month?"

Yes. Under the Public Health Act, 1875 (38 & 39 Vict. c. 55), section 158, it is laid down that the urban authority shall signify in writing their approval or disapproval within one month after the notice, plan, or description of any work has been delivered or sent to their surveyor or clerk. It was decided in the case of *Clark* v. *Bloomfield* that a local authority cannot enforce penalties for any breaches of the by-laws if the plans are neither approved nor disapproved within one month, as required by the above-mentioned Act. Any proposed works may also be commenced before the expiration of the month, or before the deposited plans have been approved, provided that the building-owner is prepared to bear the consequences of any possible contravention of the by-laws. T. E. C.

Position for Safety-Valve on Hot-Water System.

PERPLEXED writes: "In an ordinary system of hot-water supply for domestic purposes, with boot boiler behind kitchener and close tank in roof, where should the safety-valve be placed? I say on a separate pipe from the boiler. The contractor says on the flow pipe. The clerk of work says on the return pipe."

The safety-valve should be placed on a pipe connected with the top of the boiler independently of either the flow or the return pipe. A dead-weight safety-valve is the best kind to use, and immediately above the mantel shelf is the best place to fix it. It should be examined and tested each time the boiler is cleaned. If fixed on the flow pipe it may cease to act by reason of the pipe, or the fitting on which the valve is fixed, being stopped by lime deposits, the flow pipe being always more affected by "furring" than the return. The return pipe is fixed to the bottom of the boiler (the side or back near the bottom), obviously the wrong place to which to connect a safety-valve. As the water in the pipe on which the valve is fixed may be frozen, great care should be exercised in protecting the pipe between the boiler and the valve. G. A. A.

Right to Alter a Workshop.

CONSTANT READER writes: "A plot of land is sold by public auction as part of a building estate. A shop may be built on it (the kind of shop is not specified), and a builder erects a wooden workshop some years before the local authorities adopt building by-laws. The builder dies, and I buy the premises and pull the boards off the side of the workshop, leaving the posts supporting the roof. I then build in between the posts with 9in. brickwork I also fix inside a circular saw worked by a gas engine, after the building by-laws are adopted. Can the local authorities object? Can the adjoining owner object?"

Without a more complete knowledge of the whole of the facts no definite opinion can be given; but so far as can be gathered from the general statement submitted, it is highly probable that the local authorities have reasonable grounds of objection. With regard to any objection which may be raised by the adjoining owners, this is a matter for them to determine according as they may be legally advised upon the case. T. E. C.

Duties of Architects' Assistants.

LEICESTER.—JUNIOR writes: "(1) Is it the duty of an architect's assistant to instruct a pupil in the office and be held responsible for his work? (2) Should quantities be done in the office, and is the assistant supposed to instruct the pupil in arranging to bill them? (3) If a youth (not a pupil) enters an architect's office as corresponding, typewriting, &c., clerk, and fills in his time learning plotting, tracing, &c.—is the assistant supposed to teach him?"

(1) If the assistant is engaged on the understanding that he is to instruct pupils to the best of his ability, he may be expected to do so and to be held responsible for a pupil's work, just as any other employee may be made responsible for his assistants, but it is only fair that an assistant engaged for architectural work should be given such work, so that it may be congenial and instructive to him, and not be forced to waste his time instructing a pupil, for which the architect is paid a premium. However, it is but right that the assistant should give every help he can to a fellow member of the profession. (2) Quantities are best taken out by the architect if he has the knowledge to do so, but few have, and it is legitimate for them to be prepared in the office; but an assistant is not to be expected to know or to be able to instruct anyone in this specialised branch. (3) Yes, certainly. A youth entering an office at a small salary does so on the implied understanding that he shall gain instruction.

Canada for Architects' Assistants.

OXFORD.—RUPERT writes: "Is there much chance of employment for architects' assistants in Canada?"

We forwarded this enquiry to the offices of the High Commissioner for Canada, 17, Victoria Street, S.W., and W. T. R. Preston, the Commissioner of Emigration, was kind enough to reply direct to our correspondent. At the same time he sent him some pamphlets dealing with the Dominion of Canada, and said in his letter: "It is quite possible that in one of the large Canadian centres you would be able to secure work in connection with your profession; but in order to secure such an appointment you would need to make personal application. It may be that when you have perused the pamphlets you may be inclined to take advantage of the great agricultural opportunity which Canada offers. Should you so decide I shall be pleased to further your interests by giving you an introduction to a Government agent in Canada, who will help you all he can on arrival, and, if you so desire, secure an engagement for you with some well-established farmer. I would advise that the commencement of Spring is the best time for arrival in Canada, as at that time of the year, should something in your own line not turn up immediately, you will readily get work in some other direction."

R.I.B.A. Testimonies of Study: Work to Measure around Skipton.

HALIFAX.—PROBATIONER writes: "Is there any work in the neighbourhood of Ilkley and Skipton suitable to measure for the R.I.B.A. testimonies of study?"

Skipton Church is one of the best-known examples of pure thirteenth-century work in England. The porch, or projecting doorway as it may more properly be called, would be

a perfect example for the purpose mentioned, while some of the capitals could be drawn to a larger scale for the "Sheet of Mediæval Ornament." Ilkley itself seems to contain nothing of great value, but Bolton Abbey is quite close—the next station by rail—and is an excellent example of early Perpendicular work. A drawing of half the west door, showing the richly-moulded and panelled plinth at its side and the panelling above, would form a good companion to the drawing of the Skipton doorway. G. A. T. M.

Removing Grease Spots from Drawings.

GLASGOW.—G. M. S. writes: "How can grease spots be removed from drawings on Whatman paper?"

First remove as much of the grease as is possible by placing the drawing between sheets of clean blotting paper (preferably white) and ironing the spots with a moderately-hot flat iron, constantly changing the position of the blotting paper so as to expose a fresh unsoiled place and continuing this until the ironing no longer causes any discoloration. Then, if it is required to still further discharge the grease, take fresh blotting paper beneath the drawing, and, *away from light or fire*, pour over the spots benzene, which, as it passes through the paper, will carry the grease with it. It may be necessary to repeat the latter operation several times before complete success is attained; and be sure and get benzene (syn. benzol) as benzoline is often sold as benzene. H. E.

Roof Coverings.

MANCHESTER.—W. L. writes: "Kindly mention a trustworthy substitute for lead to use in covering a large flat roof, the material to be laid on wood joists."

Zinc might be used, though it is not very lasting. Copper is, of course, expensive, though a very good material. There are several patent materials upon the market, but they need a steeper fall than lead.

Pumice Concrete.

LONDON, S.W.—SPES writes: "(1) What is the composition of pumice concrete? I find that the text-books differ on the subject, Rivington giving the aggregate as being coke-breeze, while Mitchell says it is pumice stone. (2) What are the usual proportions of the composition (in this case intended for the construction of a fireproof floor)? Is there any historical Gothic work in or near London, besides Westminster Cathedral, which would be suitable to measure for the R.I.B.A. testimonies of study?"

(1) Pumice stone and Portland cement. (2) 5 of Pumice stone to 1 of cement. (3) St. Bartholomew-the-Great; Temple Church; St. Saviour's, Southwark; Tower of London; Guildhall; Crypt at St. John's, Clerkenwell; Savoy Chapel; Lambeth Palace; all of which are in London.

L.C.C. Architectural Staff.

LONDON, N.W.—A. E. H. writes: "What should I have to do to get on the architectural junior staff of the London County Council; should I have to pass an examination, or start as a tracer? I am seventeen years of age and have good drawing ability."

There is no examination. Application must be made to the Supervising Architect, Spring Gardens, S.W.

Books on Architecture.

KILMARNOCK.—H. D. S. writes: "Please recommend a book on architecture suitable for students in Honours, Building Construction, other than Banister Fletcher's 'History.'"

"Classic and Early Christian Architecture," by Prof. T. Roger Smith and John Slater, and "Gothic and Renaissance Architecture," by Prof. T. Roger Smith and Sir Edward J. Poynter, P.R.A. (Published by Sampson Low, Marston & Co., Ltd., St. Dunstan's House, Fetter Lane, E.C., price 5s. each.)

WIGAN.—W. T. writes: "Kindly name a good text-book on the planning of infectious diseases hospitals. Please also forward a complete list of various text-books published on all kinds of public buildings (for competition work)."

"Cottage Hospitals," by Sir H. C. Burdett, 8s. 6d. nett. Mr. B. T. Batsford publishes a list of standard text-books on all the various branches of the architectural profession, which will give you all the information you require. His address is 94, High Holborn, W.C.

Mica.

NORTHAMPTON.—MICA writes: "Kindly name some firms who supply mica."

Charles Hornibrook, 72, Mark Lane, E.C.; L. Lehmann, 68, Basinghall Street, E.C.; Mica Manufacturing Co., Ltd., Tower Chambers, Finsbury Pavement, E.C.; North Carolina Mica Co., 34, Cock Lane, E.C.; Sanders, Wake & Co., 23, Great St. Helens, E.C.; F. Wiggins & Sons, 10, Tower Hill, E., and 102 & 103, Minories, E. There are many others mentioned in the London Directory.

Cold-Storage Buildings.

SUNDERLAND.—ENQUIRER writes: "Please name a good book on the construction of ice-making and cold-storage buildings."

"Refrigeration, Cold Storage and Ice-making," by A. J. Wallis-Tayler (Crosby Lockwood & Son, 15s. nett.).

SHEFFIELD SOCIETY OF ARCHITECTS AND SURVEYORS.

THE first ordinary meeting of the session of the Sheffield Society of Architects and Surveyors was held on Thursday last. The president, Mr. R. W. Fowler, in an inaugural address, referred to the proposed new building by-laws; the corporation's schemes for artizans' dwellings at Wincobank and High Storrs; and stated that the architects of the city looked forward with some curiosity and interest to their development and the profit which the Corporation would make out of them.

Prof. Anderson then delivered an address on

"Recent Discoveries in the Roman Forum,"

in which he gave a sketch of the extent and nature of the work done, and brought the results together in such a way that more detailed accounts might be intelligible.

The excavations might be divided under two heads—first, those on new ground, and second, those where digging had been carried to a lower level on sites already cleared. The new patches attacked were the site of the Basilica Æmilia on the north, and the site of the church of Santa Maria Liberatrice, now demolished, on the south. The former was purchased with money provided by a generous Englishman, and the latter was bought by the Government from the nuns who owned the church. The excavations on the north had not been productive of any startling discoveries, chiefly owing to the fact that the place had been used as a quarry for building St. Peter's, but they were of great value from an archæological point of view as enabling students to form a truer estimate of the limits of the Forum and as providing a starting point for further excavations in the direction of the great imperial fora to the north.

The excavations on the south had been sensational. The ground between the Forum and the Palatine had been cleared, and the shrine of Juturna and the tank built in later times to receive the waters of the spring, together with an old well with a marble top and a system of leaden piping, had been laid bare. The church of Santa Maria Antiqua had been thoroughly explored and freed from the rubbish of nearly a thousand years, and the framework of the temple of the deified Augustus which adjoins it shown in all its nakedness.

Commendatore Boni.

The excavations on the ground already cleared by former workers had shown the existence of several (in some places at least five) strata below that where the work was broken off. "This," said the lecturer, "was largely due to the fact that Commendatore Boni is an engineer by profession and does not hesitate to undertake work which his predecessors would have looked upon as either too sacrilegious or too hazardous to attempt. He made tunnels and underpinned structures which could not be removed, and, seizing on every blank space, drove shafts down to the virgin soil. He laid bare the whole of the complex drainage system and incidentally discovered in the mud that blocked the older channels an immense number of objects of the greatest possible value, as affording a basis for dating the surrounding area. In one place a hoard of 397 gold coins in mint condition was discovered. He also laid bare the earlier roads of the Forum and showed that the Via Sacra originally followed a different line. In connection with this work, he found the famous Black Stone and determined the extent and direction of the Comitium.

"During the excavation a good deal of constructive work was carried on. Columns were placed on the bases to which they belonged and architectural fragments were collected and pieced together, making a study of the remains possible. Walls were patched so as to withstand the weather, and, generally speaking, the Forum was transformed into a show place where one can roam with a guide-book and understand the remains without the assistance of an archæologist. This policy has been much criticised, and many were shocked at the Director's scant respect for mediæval ruins and his readiness to reconstruct what he found, but nothing succeeds like success, and there can be no doubt about the success of Boni." It might be interesting, added Professor Anderson, to remark that Boni was befriended by Mr. Ruskin when he was young, and spoke with the greatest gratitude of the encouragement and inspiration that he received from him.

The lecture was illustrated by lantern slides.

EDINBURGH A.A.

THE associate section of the Edinburgh Architectural Association held its annual dinner in F. & F.'s, 129, Princes Street, Edinburgh, on Wednesday evening, November 12th, when a party numbering over fifty assembled. Mr. A. Greig, architect, occupied the chair. In addition to the usal loyal toast, various professional toasts were pledged, including "The Architectural Profession," "Arts and Crafts," "Our Brethren Abroad" and "The Surveyors." In his reply to the toast of the "Profession," Mr. Greig moved that a vote of congratulation be sent from those present—as representing the architectural students of Edinburgh—to Sir R. Rowand Anderson on the occasion of the honour recently conferred upon him by his Majesty. Mr. Greig pointed out that Dr. Anderson had been in recent years, and still remained, the leading spirit of a movement for the advancement of the education of the architectural student in Edinburgh. The motion was seconded by Mr. John Wilson. During the evening an excellent programme was carried through to the enjoyment of all present.

Keystones.

A Cathedral at Brisbane is proposed to be erected. £16,000 is required for the first part of the building.

A Lecture on "Wall Decoration" was delivered by Mr. T. Peters at the Builders' Exchange, Sheffield, last Wednesday.

A Blue-Book on the Ventilation of Factories and Workshops has just been issued, and will be dealt with in these columns as soon as space permits.

A Finchley Competition.—Eleven architects were recently selected by the Finchley School Board to submit designs for a higher elementary school. Mr. T. E. Collcutt was the assessor, and he awarded the first premium to Mr. W. G. Wilson, A.R.I.B.A., of Bloomsbury Mansions, Hart Street, W.C.; the second to Mr. G. E. T. Lawrence, A.R.I.B.A.; and the third premium to Messrs. Mitchell & Butler. Mr. Wilson has been instructed to proceed with the work.

Mr. Henry M'Clure Anderson, architect, of Edinburgh, has been appointed architect for the Foreign Mission Board of the United Free Church of Scotland in Manchuria, China, and is now on his journey there. Mr. Anderson received his early training in the office of Mr. Hamilton-Paterson, architect, George Street, Edinburgh and has been for the last four years chief architectural draughtsman for Messrs. Hamilton-Paterson & Rhind, architects, Edinburgh.

The Bristol Society of Architects held its first ordinary meeting of the session last week. Mr. Joseph Wood, president, who was in the chair, gave a short address. A paper was then read by Mr. F. Bligh Bond on "Rood Lofts," profusely illustrated by means of the lantern with photographs and drawings. At the conclusion of the paper, the usual discussion ensued, and Mr. Bond having replied, on the motion of Mr. H. Dare Bryan, seconded by Mr. J. Foster Wood, a hearty vote of thanks was accorded the lecturer. Mr. Frank Wills proposed the vote of thanks to the president for his address. The motion was seconded by Mr. Harold Smith.

Ranworth Church.—Messrs. Jarrold, of Norwich, and Messrs. Lamley & Co., of South Kensington, will shortly publish a monograph on "The Rood-Screen of Ranworth Church," by Mr. Edward F. Strange, Assistant Keeper of the National Art Library, South Kensington. It will have five illustrations and be printed on hand-made paper, the price being 2s. 6d. nett. Any profits made on the publication will go to the fund for the repair of the church, which is now being carried on under the care of Mr. J. T. Micklethwaite, F.S.A. The committee (under whose auspices the book is issued) do not propose to attempt any restoration of the screen.

Manchester Society of Architects.—At the sessional papers meeting held on Thursday last sixteen sets of drawings were on view, submitted by students in the competitions organised by the Society. The president read out the list of prize winners as follows:—Sketches in connection with the Society's summer visits to old buildings: first prize, Mr. Frank Dyer; second prize, Mr. H. B. Laycock. Measured drawings of old work: First prize, Mr. R. J. Vernon; second prize, Mr. G. S. Salomons. Essay on the Renaissance in England: prize, Mr. Spencer H. Oldham. Monthly classes of design (the subject being a row of eight small houses): first prize, Mr. Harold Hill; second prize, Mr. Frank Osler. Mr. Halsey Ricardo afterwards read a paper on "The Revival of Gothic Architecture" (see THE BUILDERS' JOURNAL for November 14th, 1900), illustrating it by lantern views of buildings of the earlier period of revival, and also from designs by Pugin, Street, Butterfield and Burges.

The Wolverhampton Exhibition resulted in a loss of £34,000.

At St. Matthew's Church, Sheffield, a stained-glass window has been erected.

In St. John the Baptist Church, Newport, Mon., a stained-glass window has been erected over the door of the south aisle.

The Brentford Workhouse, in Isleworth Road, was opened recently. It has cost £100,000, and accommodates 800 persons exclusive of staff. It is built on the separate block system.

Another Large Hotel for London.—The Carlton Hotel Company, owing to growing business, intend to buy the lease of Walsingham House and the freehold of the adjoining Bath Hotels, and to build a first-class residential hotel on the site. The undertaking will cost between £500,000 and £600,000.

The Parish Church of Fairfield, Buxton, has been reopened after being restored, and a new chancel, organ chamber, and north and south transept added, at a cost of £3,000. The work has been done by Messrs. A. & H. Hill.

An English Calvinistic Methodist Church at Cardiff is being erected in Cathedral Road, from designs by Mr. Edgar G. C. Down, A.R.I.B.A. The style is Early Perpendicular, and accommodation will be provided for 750 worshippers. The contract price is £5,600.

Liverpool Cathedral.—At a meeting of the Liverpool Cathedral Committee last week it was stated that £155,000 had been promised towards the £200,000 required for the building fund. It was expected that the foundation-stone would be laid in 1904. The time by which the final designs are to be sent in is April 30th next.

A new Board School at Brixton has been erected. The school, which is built on the central hall plan, consists of three floors, with a hall and seven classrooms on each. It is intended to accommodate 1,082 children. Each of the senior departments has a class room specially fitted for science instruction, while the school is also a manual training centre. Adjoining is a small school and hall for forty delicate or backward children.

The Protection of Stonehenge.—A meeting of the Stonehenge Committee, consisting of representatives of the Society of Antiquaries of London, the Wiltshire Archæological Society, and the Society for the Protection of Ancient Buildings, was held last week. The committee received a report of the operations that had taken place under its advice with the sanction and at the cost of Sir Edmund Antrobus, and expressed approval of the steps taken towards ensuring the safety of Stonehenge. The committee is anxiously conscious of the fact that in the present state of Stonehenge there is grave danger of further accidents. To meet the dangers of the present winter it has now recommended the immediate application of wooden props to the stones about which the chief anxiety is felt.

New Baptist Schools at Lowestoft are being erected in Grove Road at the back of the existing church and vestries. They consist of a large schoolroom, church parlour, infants' room, kitchen, six independent classrooms, and three other classrooms capable of being thrown open into the schoolroom by means of swivel partitions. Suitable lavatory accommodation is provided. The building is faced externally with red bricks, the dressings being of white Costessey work. The design is late Gothic in style. Mr. Charles E. Earl is the contractor and the estimated cost is £1,338. The architects for these buildings and for the church (recently completed) are Messrs. George Baines, F.R.I.B.A., and R. Palmer Baines, 5, Clement's Inn, Strand, London, W.C.

A Congregational Church at Leeds has been erected in Woodhouse Lane at a cost of £16,000.

A new Suburban Theatre is being erected for Mr. F. W. Purcell in Holloway Road. Mr. F. Matcham is the architect, and Messrs. Patman & Fotheringham are the contractors.

Dublin's Victoria Memorial.—The Executive Committee of the Queen Victoria Statue Memorial have accepted the design of an Irish sculptor, Mr. John Hughes, R.H.A., for erection in Dublin.

Mr. Henry Theobald, F.S.I., of 6, South Street, Finsbury Pavement, is the quantity surveyor appointed to prepare the bills of quantities for fifty-five new workmen's dwellings about to be erected for the Hampton (Middlesex) District Council.

Mr. Charles Macnair leaves Scotland shortly to fill an appointment under Mr. G. Grainger Fleming, architect, Johannesburg and Pretoria. For the last five years Mr. Macnair has been on the staff of Messrs. Hamilton-Paterson & Rhind, architects.

The new Out-patients' Department at the London Hospital is now almost completed, and will be formally opened next year. It will be capable of seating 1,000 patients while waiting their turn, comfortably warmed and lighted, and with numerous rooms for the various doctors.

York City Moat.—The Yorkshire Architectural and York Archæological Society have resolved:—"That this Society views with dismay the proposal of the city surveyor to interfere with the moat of the city, and strongly deprecates any action which would in the least obscure its ancient and historic character."

A Wesleyan Church and Schools at Worcester have been erected in Pump Street at an estimated cost of £8,000, of bricks with Bath-stone dressings, in the Renaissance style. At the rear of the church is a large assembly-room with four classrooms. Mr. J. Jameson Green (Liverpool) was the architect, and Mr. W. Hopkins (Birmingham) the contractor.

St. Anne's Schools at Hanwell, in Springfield Road, were opened last Saturday. Mr. William Pywell, A.R.I.B.A., is the architect. The buildings comprise three distinct blocks, a school for boys and girls on one hand and infants' school on the other, with the school board's offices and caretaker's house between the two. Accommodation is provided for 1,230 children in two departments all of one storey, namely, a senior mixed school consisting of 12 classrooms grouped round a central hall, and an infants' department as a separate building. The external walls throughout are faced with yellow stock bricks with red dressings and purple grey bands. The parapet copings, sills and other stonework are executed in red Dumfries stone. The roofs of the school buildings are covered with green slates, while the offices and caretaker's block is roofed with red Broseley tiles. The amount of contract was £21,457 for the building and £921 for the furniture. Messrs. Kingerlee & Sons, of Oxford, were the general contractors. The heating apparatus was supplied and fixed by Messrs. Benham & Sons, Ltd., the wrought-iron casements and window fittings by Messrs. Henry Hope & Sons, the wrought-iron gates, railings and gas fittings by Messrs. Jones & Willis, the locks and door furniture by Messrs. Nettlefold & Sons, the school bells by Messrs Warner & Sons, the school furniture by Messrs. Fisher, Son & Weaver, the board's offices furniture by Messrs. Maple & Co., and the window blinds by Mr. George Ormond. Mr. W. Coppock was foreman of bricklayers, and Mr. George Prior acted as the contractors' general foreman.

Trade and Craft.

Ewart's Geysers.

At this time of the year special attention is directed to the hot-water service. A ready means of increasing the existing supply without considerable expense is to instal one of Messrs. Ewart's geysers. The "Lightning" geyser provides hot water immediately, and as the water is heated while passing through the cylinder the supply is unlimited. The "Califont" geyser enables hot water to be obtained at any part of the house. It is made to withstand the pressure of the cold-water main, and can therefore be placed in the basement or any out-of-the-way position. The "Califont" is very economical, as the gas is only full on while hot water is being taken from any of the draw-off taps, the gas being lowered to a by-pass as soon as the tap is closed; moreover, this geyser may be connected to hot-water pipes already in the house. Another new apparatus is the "Euston" radiator, which is particularly suitable for warming halls, offices, rooms, passages, &c. It needs only to be connected with a small gas supply, occupies little space, requires no attention, and gives excellent results. Messrs. Ewart also supply smoke-curing appliances, and have recently issued a new and complete catalogue dealing with them. Special attention is drawn to the "Empress" smoke cure, which has been found very successful in curing smoky chimneys in the most difficult positions. The showrooms of Messrs. Ewart & Son, Ltd., are at 346-350, Euston Road, London, N.W. Catalogues will be forwarded post-free on application.

A New Joint for Wood.

Messrs. Truss & Co., of 120, Fenchurch Street, London, E.C., are the patentees of a new twin-tenon joint which does away with nails or glue, and enables the parts to be easily disconnected when required. It consists of a short length of double-channel iron (or wood) which fits into corresponding grooves cut obliquely to the joint plane, the cutting being done with a special tool. By these means a sliding grip is secured, and the tendency is always to tighten the joint if more strain is put upon it. The patent tool for cutting the grooves can be used by hand, and a good workman can cut eighty grooves an hour: or, if preferred, it may be worked by machine power. The device has also the advantage that if the wood shrinks it closes around the tenon, which holds the joint firm, instead of leaving gaps across it.

Stuart's Granolithic.

A material that has been so extensively employed as Stuart's Granolithic, and adopted for so many important buildings, recommends itself. It has been tested experimentally with extremely good results, and proved to be equally satisfactory after many years of practical use; and, having earned so good a reputation, it is now recognised as one of the best materials of its kind on the market. With granite as a basis for its durability and an excellent cement for binding the whole into one solid tenacious mass, Stuart's Granolithic possesses remarkable qualities; for, as regards its durability, the pavement laid with it in Leadenhall Street more than twenty years ago is still in excellent repair; while, as regards its resistance to compression, a square foot of the material was not crushed till the enormous pressure of 562 tons had been brought to bear on it. More than 5,000,000 ft. super. of it have already been laid down, including 1,400 miles of paving and 2,000,000 lineal ft. of steps and dressings. At various exhibitions the material has been awarded sixteen gold and silver medals. To thoroughly appreciate how extensively it has been employed one needs to see the "souvenir" which has just been issued by the makers. This is quite a thick book comprising large illustrations of many important buildings, among which are the following:—Mar Lodge, the Duke of Fife's new Highland residence in the Dee Valley (Mr. A. Marshall Mackenzie, architect); the North British Railway Station Hotel at Edinburgh (Messrs. Beattie, Scott & Beattie, architects), where 21 acres of Granolithic plastering on walls and ceilings, 15 miles of cornices and 15 miles of cement skirting were executed; the Waverley Station Hotel at Edinburgh; the Royal Naval College at Dartmouth (Mr. Aston Webb, A.R.A., architect); the new Municipal Technical Schools at Manchester, Birmingham and West Ham; Selwyn College, Cambridge; the Hotel Metropole and the new Town Hall at Brighton; Hendon Asylum (Messrs. Giles, Gough & Trollope, architects); All Saints' Convent, Colney, St. Albans (Mr. Leonard Stokes, architect); the Employers' Liability offices on the Embankment, London (Sir William Emerson, architect); Wills's new tobacco factory at Bristol, and numerous large business and shop premises throughout the Kingdom. The collection of these illustrations in itself makes the souvenir very attractive, but, in addition, there are many sections and constructional details of great interest and value to architects, builders and engineers. The London offices of Stuart's Granolithic Stone Co., Ltd., are at Glengall Road, Millwall Dock, E.

New Companies.

Hobbies' New Timber Yard, Ltd.

Capital £26,000 in £1 shares. To acquire a business and undertaking of a company having a similar title as now, and hitherto carried on at Athlone, Ireland, and 317 Holloway Road, London, and generally to carry on business as timber merchants, wood dealers, veneer and general fancy wood dealers and articles made therefrom, sawmillers and sawmill proprietors, &c.

J. H. & W. Bell, Ltd.

Registered to acquire the business carried on at Liverpool and London by J. H. & W. Bell, and to carry on business as erectors of all kinds of structures, &c. Capital £600 in £5 shares. Registered office: 47, Exchange Chambers, Liverpool.

James Carter & Sons, Ltd.

Registered to acquire, under an agreement, the business now carried on by James Carter & Co. at Clitheroe and elsewhere, and to carry on the business of quarry proprietors, lime burners, dealers, and lime merchants, brick-makers, artificial stone-makers, &c. Capital £10,000 in £1 shares. Registered office: 18, Stout Street, Blackburn.

Laverton, Webb & Co., Ltd.

Registered to acquire the business of Laverton's, Ltd., and to carry on the business of house furnishers, upholsterers, decorators, &c. Capital £10,000 in £1 shares (5,000 preference). The first directors are W. H. Webb, R. H. Webb and W. E. Gardner.

Preston Granite Concrete Co., Ltd.

Registered with a capital of £10,000 in £1 shares to acquire from J. Gorton a provisional contract for the purchase of the leasehold interest of the Lancashire Patent Plaster Slab Co., Ltd., in a plot of land, with warehouse thereon, abutting on the New Quay, Preston; and plant, and the right to use, exercise and vend an invention for improved machinery for producing slabs of plaster, cement or composition, &c.; and to carry on the business of manufacturers of plaster slabs, granite, concrete paving flags, &c. Registered office: New Quay, Preston.

Suburban Estates Co., Ltd.

Registered with a capital of £10,000 in £1 shares for the object indicated by the title.

Hydraulic Brick & Stone Co., Ltd.

Registered to acquire patents and rights relating to the manufacture of hydraulic bricks, tiles, artificial stone, cement, concrete and other substances, and in particular to acquire from J. S. Rigby the benefit of certain existing inventions and to carry on the business of manufacturers of and dealers in hydraulic bricks, tiles and artificial stone, contractors for public works and convenienes, &c. Capital £16,000 in £1 shares.

Hurstpierpoint Cottage Trust, Ltd.

Registered to acquire, improve, build or otherwise provide and maintain dwellings, tenements and conveniences for the industrial and labouring classes, or others in Hurstpierpoint, Sussex. The first governors are Rev. R. A. C. Bevan, W. H. Campion, A. Weekes, W. Borer, S. Hannington, Dr. I. D. Chepmell and Rev. R. Mashiter. Capital £2,000 in £1 shares.

William Shaw and Son, Ltd.

Registered to acquire and carry on the business of wrights, masons and contractors in Commerce and Wallace Streets, Glasgow. Capital £25,000 in £1 shares. Registered office: 94, Commerce Street, Glasgow.

Northfield Colliery Co., Ltd.

Registered to acquire the business of a colliery proprietor carried on by Henry Westwood at Northfield Colliery, Ossett, as Westwood & Co., and to carry on the business of colliery proprietors, brick, tile and pipe-makers, &c. Capital £10,000 in £10 shares (500 preference).

Engineering Notes.

Littlehampton Waterworks, constructed by the urban council at a cost of £22,500, have been opened.

Mr. John Ayres, M.I.C.E., for many years engineer and manager of the City of Norwich Waterworks, died last Saturday week at Yarmouth.

The St. John's Schools, Darlington, have been supplied by Messrs. E H. Shorland & Brother, of Manchester, with their patent Manchester stoves and grates.

Messrs. E. J. Rayburn & Co., Ltd., of Workington, owing to increasing business in London and suburbs, have opened a London office at 113, Finsbury Pavement, E.C., and have appointed as their representative Mr. F. E. Barlow.

Mr. William Henry Barlow, F.R.S., M.I.C.E., who died last Wednesday at the age of ninety, was a distinguished civil engineer, best known perhaps as the engineer of St. Pancras Station and other large works upon the Midland Railway, to which he was consulting engineer. He was the son of Peter Barlow, F.R.S., who in the early part of the last century held the post of Professor of Mathematics at the Royal Military Academy, Woolwich. His elder brother, Peter William Barlow, was also an engineer of some eminence. Jointly with Sir John Hawkshaw, he was engineer for the Clifton Suspension Bridge over the Avon, opened in 1864, in which the chains of Old Hungerford Bridge depend from towers erected by Brunel thirty years previously. Mr. Barlow was the engineer of the new bridge over the Tay, built to replace the structure blown down in December, 1879; and was one of the committee of selection appointed to consider the designs for the new Forth Bridge. He and Sir Frederick Bramwell were the first two civil members of the Ordnance Committee.

Complete List of Contracts Open.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDERS MAY BE OBTAINED.
	BUILDING:		
Nov. 20	Nottingham- Station Buildings	Midland Railway Co.	Engineer, 22 Park Road, Nottingham.
„ 20	Witton, Birmingham—Bricks, Lime, Cement, &c.	Kynoch, Ltd.	F. Huxham. Secretary, Lion Works, Witton, Birmingham.
„ 20	Carlisle—School	School Board	W. H. Brierley, Architect, Lendal, York.
„ 20	Cork—Bricks, Slates, Stone, &c.	Corporation	Engineer, Municipal Buildings, Cork.
„ 20	Bowness—Lodge	Dr. Dobson	J. Pattinson, Architect, Windermere.
„ 20	Woolwich—Repairs, &c.	Union Guardians	J. O. Cook, Architect, Eleanor Road, Woolwich.
„ 21	Greenock—Residence	Admiralty	Director of Works Department, Admiralty, Avenue House, 21 Northumberland Avenue W.C.
„ 21	Londonderry—Buildings at Asylum	Committee of Management	M. A. Robinson, Architect, Richmond Street, Londonderry.
„ 21	Grove Point, Portland—Coastguard Buildings	Admiralty	Director of Works Department, Admiralty, Northumberland Avenue, W.C.
„ 21	Llanelly—Extension, &c., of School	Pembrey School Board	R. Williams, Architect, Burry Port.
„ 22	Bradford—Underground Convenience, &c.	Corporation	F. E. P. Edwards, City Architect, Chapel.
„ 22	Carmarthen—Alterations, &c., to Bank House	County Council	D. Phillips, County Surveyor, Carmarthen.
„ 22	Forres, Scotland—Additions, &c., to Hotel	——	J. Forrest, Architect, Forres.
„ 22	Llwynypia, Wales—Laundry Buildings	Union Guardians	A. O. Evans, Architect, Pontypridd.
„ 22	Lochwinnoch, Scotland—School	School Board	C. Davidson, Architect, Terrace Buildings, Paisley.
„ 22	Manchester—Eighty-two Cottages	Sanitary Committee	City Architect, Town Hall, Manchester.
„ 22	Crowan, Camborne—Addition to School	School Board	E. C. Harvey, Leedstown.
„ 22	Pontypridd—Generating Station, Car Sheds and Offices	Urban District Council	R. P. Wilson 66 Victoria Street Westminster.
„ 22	Coventry—Two Concrete and Brick Gasholder Tanks	Corporation	F. W. Stevenson, Engineer, Gasworks, Coventry.
„ 24	Bristol—School	School Board	W. V. Gough, 24 Bridge Street, Bristol.
„ 24	Hanwell W.—Alterations, &c., to Schools	School Board	W. Pywell, Architect, Cumberland House, Hanwell, W.
„ 24	Brierley Hill, Staffs—Technical School and Free Library	Urban District Council	W. Waldron, 17 High Street, Brierley Hill.
„ 24	Hastings—Enlargement of Schools	School Board	C. A. Piggott, Architect, Saxon Chambers, London Rd., St. Leonards.
„ 24	Hastings—Alterations, &c., to Convenience	Corporation	P. H. Palmer, Town Hall, Hastings.
„ 24	St. Albans—Pavilion at Recreation Ground	Corporation	City Surveyor, Town Hall, St. Albans.
„ 24	Blackburn—Concrete and Steel Joist Flooring and Floor-tiling	Corporation	Town Clerk, Blackburn.
„ 24	Felling, Durham—Portland Cement, Bricks, &c.	Urban District Council	Surveyor, Council Offices, Felling.
„ 24	Glasgow—Bricks, Cement, Lime, Slates, &c.	Caledonian Railway Co.	J. Lorimer, Stores Superintendent, Caledonian Railway, Charles Street, St. Rollox, Glasgow.
„ 24	Newcastle-upon-Tyne—Premises	Town Improvement Committee	City Engineer, Town Hall, Newcastle-upon-Tyne.
„ 25	Tavistock—Rebuilding Manor House	R. Collins	H. W. Collins, Architect, Redruth.
„ 26	Swansea—School	School Board	A. W. Halden, Clerk, School Bd. Offices, Dynevor Place, Swansea.
„ 26	Edwardsville, near Treharris—Vestry	Tabernacle Congregatnl. Church	W. Dowdeswell, Architect. Bryntaff, Treharris.
„ 26	Lambeth, S.E.—Porter's Lodge	Guardians	W. Thurnall, Clerk, Brook Street, Kennington Road, S.E.
„ 27	Gateshead—Hospital Buildings	Corporation	J. Bower, Borough Engineer, Town Hall, Gateshead.
„ 27	Leamington—Alterations to Town Hall	Corporation	Borough Engineer, Town Hall, Leamington.
„ 27	Bishop Auckland—Minister's House	——	T. Deadman, 2 Croft Terrace, Coundon.
„ 27	Bristol—Offices, &c.	Waterworks Co.	H Williams, Architect, Alliance Chambers, Corn Street, Bristol.
„ 27	North Shields—Extension of Schools	Tynemouth School Board	Marshall & Twe dy, 17 Eldon Square, Newcastle-upon-Tyne.
„ 28	London, S.W.—Encaustic Memorial Tablets	London County Council	County Hall. Spring Gardens, S.W.
„ 28	Manchester—Fireclay Goods	Gas Committee	C. Nickson, Superintendent, Gas Offices, Town Hall, Manchester.
„ 28	Warrington—Cement, Bricks, &c	Cheshire Lines Committee	S. S. Barton Storekeeper, Cheshire Lines, Warrington.
„ 28	Grimsby—Foreman's Office, &c.	Corporation	H. G. Whyatt, Borough Engineer, Town Hall Square, Grimsby.
Dec. 1	Didcot—Alterations and Additions to School	School Board	Hoare & Wheeler, 7 Friar Street, Reading.
„ 1	Aughnacloy, Ireland—Church	Rev. W. H. Booth	D. W. Morris, 63 Harcourt Street, Dublin.
„ 1	London, N.—Laboratory, &c.	Finchley Urban District Council	E. H. Lister, Clerk, Council Offices, Finchley Hall, Finchley, N.
„ 1	London, S.W.—Buildings, &c.	Wandsworth Borough Council	Surveyor, 215 Balham High Road, S.W.
„ 2	Dublin—Cement, Lime, Slates, &c	Midland Gt. Western Rly. Co. (Ireland).	General Stores Department, Broadstone Station, Dublin.
„ 6	Belfast—Alterations to Church	——	T. Houston, Architect, Kingscourt, Wellington Place, Belfast.
„ 6	Walsall—School Buildings	School Board	Bailey & M'Connal, Architects, Bridge Street, Walsall.
„ 10	Ventnor, I.W.—Isolation Hospital	Undercliffe Isolation Hospital Committee.	G. Boughton, Architect, "Woodlands," Ryde, I.W.
„ 11	London, S.W.—Victoria and Albert Museum Superstructure	Commisssioners of H.M. Works	H.M. Office of Works, Storey's Gate, Westminster, S.W.
No date.	Mundesley, Norfolk—Restoration of Parish Church	——	A. J. Lacey, 6 Upper King Street, Norwich.
„	Haxby, York—Alterations, &c., to Schools	School Board	E. T. Felgate, 3 Stonegate, York.
	ENGINEERING:		
Nov. 20	Southend-on-Sea—Sea Walls, &c.	Corporation	Borough Engineer, Municipal Offices, Southend.
„ 20	Kirkpatrick-by-Ecclefechan, Scotland—Excavators' Work	——	Manager, New Cove Quarries, Ltd., Kirkpatrick-by-Ecclefechan.
„ 21	West Hartlepool - Sewer, &c.	Corporation	J. W. Brown, Borough Engineer, West Hartlepool.
„ 22	Wilton, Wilts—Steam Road Roller	Town Council	W. W. H. Musselwhite, Borough Surveyor, Wilton.
„ 22	Aspatria, Cumberland—Waterworks	Joint Water Board	Pickering & Compton, 11 Lowther Street, Whitehaven.
„ 22	Perth, Western Australia—Rubbish Destructor	City Council	Agent-General for Western Australia, 15 Victoria St., Westminster.
„ 22	Pontypridd—Tramways	Urban District Council	R. P. Wilson, 66 Victoria Street, Westminster.
„ 23	Coventry—Gasholder Tanks	Gas Committee	F. W. Stevenson, Engineer, Gasworks, Coventry.
„ 24	Leeds—Retort Installation	Gas Committee	R. H. Townsley, General Manager, Gas Offices, Leeds.
„ 24	Blackburn—Electrical Plant	Town Council	Lacey, Clirehugh & Sillar, 2 Queen Anne's Gate, Westminster.
„ 24	Stalybridge—Motor Generators, &c.	Tramways and Electricity Board	F. Schofield, Clerk, Town Hall, Stalybridge.
„ 24	Glasgow—Electric Lighting Material and Fittings, &c.	Caledonian Railway Co.	J. Lorimer, Stores Superintendent, Caledonian Railway, Charles Street, St. Rollox, Glasgow.
„ 25	Alcester—Pipelaying, &c.	Rural District Council	Wilcox & Raikes, 63 Temple Row, Birmingham.
„ 25	Feckenham, Alcester—Waterworks	Rural District Council	Willcox & Raikes, 63 Temple Row, Birmingham.
„ 25	Irvine - Reservoir, &c.	Corporation	J. & A. Leslie & Reid, 72A George Street, Edinburgh.
„ 26	Lowestoft—Tramways	Corporation	R. B. Nicholson, Town Clerk, Lowestoft.
„ 26	Aberdeen—Tower Wagon	Tramway Committee	J. A. Bell, City Electricity Engineer, Cotton Street, Aberdeen.
„ 27	Cardiff—Engine Repairs, &c.	Corporation	C. H. Priestley, Town Hall, Cardiff.
„ 27	London, N.—Fire Mains	St. Mary's Guardians, Islington	W. Smith, 65 Chancery Lane, W.C.
„ 28	Crajora—Water Supply	——	W. H. Lindley, Frankfort-on-Maine, Germany.
„ 28	Sunderland—Electric Plant	Corporation	J. F. C. Snell, Town Hall, Sunderland.
„ 28	Burton-on-Trent—Inclined Retort Plant	Corporation	F. L. Ramsden, Manager, Gas & Electricity Light Works, Burton upon-Trent.
„ 28	London, N.—Electric Plant	Finchley U.D.C.	E. Calvert, Council's Electrical Engineer, Broadway, Finchley, N.
„ 29	Manchester—Tank	Gas Committee	C. Nickson, Superintendent, Gas Dept., Town Hall, Manchester.
„ 29	Manchester—Reconstruction of Bridge	——	City Surveyor, Town Hall, Manchester.
„ 30	Shanghai—Electric Lighting	British Municipal Councils	Office of the Board of Trade, 50 Parliament Street, S.W.
Dec. 1	Dumfries, Scotland—Electric Lighting	Town Council	J. Grierson, Town Clerk. Dumfries.
„ 1	Plymouth—Sewerage Works	Corporation	J. Mansergh & Sons, 5 Victoria Street, Westminster.
„ 1	Blackpool—Storage Culvert, &c.	Sewerage Board	A. Hindle, 44 Abingdon Street. Blackpool.
„ 1	Felixstowe—Fire Engine, &c.	Urban District Council	F. B. Jennings, Clerk, Town Hall, Felixstowe.
„ 1	Selkirk—Gas Engine, &c.	Town Council	H. W. Taylor, Engr., St. Nicholas Chambers, Newcastle-upon Tyne.
„ 2	Adelaide, South Australia—Harbour	——	Agent-General for South Australia, 1 Crosby Square, London.
„ 3	Yeovile Gasholder	Gas Committee	E. Howell, Secretary, Gasworks, Yeovil.
„ 4	Llandudno—Water Main	Urban District Council	E. P. Stephenson, Engineer, Council Office, Llandudno.
„ 5	Durban, Natal—Telephone System	Corporation	Webster, Steel & Co., 5 East India Avenue, Leadenhall St., E.C.
„ 8	Manchester—Fire-Boat	Watch Committee	Chief Officer of the Fire Brigade, Jackson's Row, Manchester.
„ 10	Harwich - Dredging Harbour	Harbour Conservancy Board	T. Miller, 9 Thoroughfare, Ipswich.
„ 13	Madrid—Canal Reservoir	——	Office of the Ministry of Agriculture, Commerce and Public Works, Madrid.
„ 15	Monte Video, Uruguay—Sanitary Works	Uruguayan Government	Consulate-General of Uruguay, Edinburgh Mansions, Howick Place, Victoria Street, S.W.
„ 20	Alexandria, Egypt—Steamer	——	Inspector of Irrigation, Third Circle, Alexandria.
	FURNITURE:		
Nov. 21	Cardiff—Bedsteads	Guardians	A. J. Harris, Clerk, Union Offices, Queen's Chambers, Cardiff.
„ 29	Newcastle-on-Tyne—Furniture, &c., at Police Station	Watch Committee	Chief Constable, Pilgrim Street, Newcastle.
	IRON AND STEEL:		
Nov. 20	Witton, Birmingham—Stores	Kynoch, Ltd.	F. Huscham, Secretary, Lion Works, Witton, Birmingham.
„ 20	Dublin—Iron Castings, Ironmongery, &c.	Commissioners of Irish Lights	O. Armstrong, Secretary, Irish Lights Office, D'Olier Street, Dublin.
„ 20	Dundee—Iron and Steel, &c.	Harbour Trustees	J. Thompson, junior, Harbour Engineer, Dundee.

Complete List of Contracts Open.—*continued.*

DATE OF DELIVERY.		WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDERS MAY BE OBTAINED.
		IRON AND STEEL—*continued.*		
Nov.	20	Cork—Iron, &c.	Corporation	Engineer, Municipal Buildings, Cork.
,,	21	Chorley, Lancs—Steel Boiler	Guardians	B. Stanton, 14 High Street, Chorley.
,,	23	Coventry Ironwork for Gasholder Tanks	Gas Committee	F. W. Stevenson, Engineer, Gasworks, Coventry.
,,	24	Belfast—Rails	Harbour Commissioners	G. F. L. Giles, Harbour Engineer, Belfast.
,,	24	Blackburn—Window-opening Gear	Corporation	Town Clerk, Blackburn
,,	24	Felling, Durham—Cast-iron Work, &c.	Urban District Council	Surveyor, Council Offices, Felling.
,,	24	Glasgow—Railway Stores	Caledonian Railway Co.	J. Lorimer, Stores Superintendent, Caledonian Railway, Charles Street, St. Rollox, Glasgow.
,,	24	Newcastle-upon-Tyne—Stores	Town Improvement Committee	City Engineer, Town Hall, Newcastle.
,,	25	Alcester—Pipes	Rural District Council	Willcox & Raikes, 63 Temple Row, Birmingham.
,,	25	Feckenhampear, Alcester—Pipes	Rural District Council	Willcox & Raikes, 63 Temple Row, Birmingham.
,,	26	Dublin—Stores	Great Southern and Western Railway Co. (Ireland).	Storekeeper, General Stores, Inchicore, Dublin.
,,	28	Warrington—Stores	Cheshire Lines Committee	S. S. Barton, Storekeeper, Cheshire Lines, Warrington.
,,	29	Swansea—Castings, &c.	Harbour Trustees	Engineer, Harbour Office, Swansea.
Dec.	1	Blackpool—Pipes, &c.	Sewerage Board	A. Hindle, 44 Abingdon Street, Blackpool.
,,	2	Dublin—Stores	Midland Great Western Railway Co. (Ireland).	General Stores Department, Broadstone Station, Dublin.
,,	3	Amsterdam—Iron and Steel	Netherlands Minister of Colonies	Mart. Nyhoff, The Hague.
		PAINTING AND PLUMBING:		
Nov.	20	Dublin—Coppersmith and Plumbing Work, Brushes, &c.	Commissioners of Irish Lights	O. Armstrong, Secretary, Irish Lights Office, D'Olier Street, Dublin.
,,	20	Witton, Birmingham—Putty, Red Lead, White Lead, Oils, &c.	Kynoch, Ltd.	F. Huxham, Secretary, Lion Works, Witton, Birmingham.
,,	20	Dundee—Paints, Oils, &c.	Harbour Trustees	J. Thompson, jun., Harbour Engineer, Dundee.
,,	20	Cork—Paints, Oils, Glass, &c.	Corporation	Engineer, Municipal Buildings, Cork.
,,	21	West Hartlepool—Painting and Papering	Corporation	J. W. Brown, Borough Engineer, West Hartlepool.
,,	24	Glasgow—Colours and Paints, Brushes, &c.	Caledonian Railway Co.	J. Lorimer, Stores Superintendent, Caledonian Railway, Charles Street, St. Rollox, Glasgow.
,,	24	Belfast—Plumbing Works, &c.	Lunatic Asylum Committee	Graeme-Watt & Tulloch, 77A Victoria Street. Belfast.
,,	26	Dublin—Brushes, Varnishes, &c.	Gt. Southern and Western Railway (Ireland).	Company's Storekeeper, General Stores, Inchicore, Dublin.
,,	28	Warrington—White Lead, Oils, &c.	Cheshire Lines Committee	S. S. Barton, Storekeeper, Cheshire Lines, Warrington.
Dec.	1	Halifax—Painting, &c.	School Board	W. H. Ostler, 22 Union Street, Halifax.
,,	2	Dublin—Varnish, Paints, Oil, &c.	Midland Great Western Railway Co. (Ireland).	General Stores Department, Broadstone Station, Dublin.
		ROADS AND CARTAGE:		
Nov.	20	Saxmundham, Suffolk—Granite	Urban District Council	J. Fry, Surveyor, Saxmundham.
,,	20	Cork—Flags, Setts, Gravel, Sand, &c.	Corporation	Engineer, Municipal Buildings, Cork.
,,	21	Saxmundham, Suffolk—Baths	Urban District Council	J. Franklin, Surveyor Station Road, Saxmundham.
,,	22	Blackburn—Street Works	Water Committee	W. Stubbs, Borough Engineer, Municipal Offices, Blackburn.
,,	24	Newcastle-upon-Tyne—Road Stone, Flags, &c.	Town Improvements Committee	City Engineer, Town Hall, Newcastle-upon-Tyne.
,,	24	Exmouth—Horse Hire	Urban District Council	Surveyor, Public Hall Chambers, Exmouth.
,,	24	Middlesbrough—Flags and Kerbs	Corporation	Borough Engineer, Municipal Buildings, Middlesbrough.
,,	24	Bangor, Ireland—Road, &c.	Highways and Sanitary Committees.	J. Gill, Borough Surveyor, Bangor.
,,	25	Walthamstow—Making-up, &c.	Urban District Council	G. W. Holmes, Engineer, Town Hall, Walthamstow.
,,	25	West Ham—Making-up, &c.	Town Council	J. G. Morley, Borough Engineer, Town Hall, West Ham.
,,	25	West Hartlepool—Flagging	Corporation	J. W. Brown, Borough Engineer, West Hartlepool.
,,	26	West Hartlepool—Scavenging	Corporation	J. W. Brown, Borough Engineer, West Hartlepool.
,,	26	Gravesend—Stone	Town Council	C. E. Hatten, Town Clerk, Court House, Gravesend.
Dec.	2	Dover—Street Improvements	Town Council	H. E. Stilgoe, Borough Engineer, Maison Dieu House, Dover.
		SANITARY:		
Nov.	20	Cork—Sewer Pipes, Sanitary Requisites, &c.	Corporation	Engineer, Municipal Buildings, Cork.
,,	21	West Hartlepool—Sewer	Corporation	J. W. Brown, Borough Engineer, West Hartlepool.
,,	21	Nelson, Lancs—Sewer, &c.	Sewage and Streets Committee	B. Ball, Borough Engineer, Town Hall, Nelson.
,,	22	Kirkcaldy, Scotland—Sewerage Works	Fife County Council	W. D. Sang, Engineer, Kirkcaldy.
,,	24	Stapleford—Scavenging	Rural District Council	F. W. Fox, Clerk, Bank Chambers, Beastmarket Hill, Nottingham.
,,	24	Lewes—Sewer	Town Council	Borough Surveyor, Town Hall, Lewes.
,,	24	Felling, Durham—Pipes, &c.	Urban District Council	Surveyor, Council Office, Felling.
,,	24	Audenshaw, Lancs—Removal of Nightsoil, &c.	Urban District Council	F. Hamer, 2 Guide Lane, Audenshaw.
,,	24	Newcastle-upon-Tyne—Pipes, Disinfectants, &c.	Town Improvement Committee	City Engineer, Town Hall, Newcastle.
,,	27	Basingstoke—Sewers	Works Committee	G. Fitton, Borough Surveyor, Town Hall, Basingstoke.
,,	28	Warrington—Drain Pipes, &c.	Cheshire Lines Committee	S. S. Barton, Storekeeper, Cheshire Lines, Warrington.
,,	29	Reigate—Sewers, &c.	Rural District Council	J. Taylor, Sons & Crimp, 27 Great George Street, Westminster.
Dec.	1	Plymouth—Sewers, &c.	Corporation	J. Mansergh & Sons, 5 Victoria Street, Westminster.
,,	1	Plymouth—Sewerage Works	Corporation	J. Mansergh & Sons, 5 Victoria Street, Westminster.
,,	15	Monte Video—Sanitary Works	Government of Uruguay	Uruguay Legation, London.
		TIMBER:		
Nov.	20	Witton, Birmingham—Timber	Kynoch, Ltd.	F. Huxham, Secretary, Lion Works, Witton, Balham.
,,	20	Dublin—Timber	Commissioners of Irish Lights	O. Armstrong, Secretary, Irish Lights Office, D'Olier Street Dublin.
,,	20	Cork—Timber	Corporation	Engineer, Municipal Buildings, Cork.
,,	24	Newcastle-upon-Tyne—Timber	Town Improvement Committee	City Engineer, Town Hall Newcastle.
,,	25	West Hartlepool—Fencing	Corporation	J. W. Brown, Borough Engineer, West Hartlepool.
,,	28	Warrington—Timber, Sleepers	Cheshire Lines Committee	S. S. Barton, Storekeeper, Cheshire Lines, Warrington.
,,	29	Swansea—Timber	Harbour Trustees	Engineer, Harbour Office, Swansea.
Dec.	2	Dublin—Timber	Midland Great Western Railway Co. (Ireland).	General Stores Department, Broadstone Station, Dublin.

List of Competitions Open.

DATE OF DELIVERY.		DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Nov.	29	Ramsgate—Technical Schools and Free Library	£50, £25, £15.	T. G. Taylor, Borough Surveyor, Albion House Ramsgate.
,,	29	Arbroath—Golf Club House		W. Alexander, 62 High Street, Arbroath.
Dec.	1	Arundel, Sussex—Laying-out Land	£50, £20.	A. Holmes, Town Clerk, Arundel.
,,	1	Chadderton—Free Library		G. Taylor, Clerk to U.D.C., Town Hall, Chadderton.
,,	2	Holyhead—Schools and Teacher's House		R. E. Pritchard, Clerk to School Board, Holyhead.
,,	8	Bristol—School	(Limited to Local Architects.)	W. A. Adams, Clerk to School Board, Guildhall, Bristol.
,,	12	Eccles—Laying-out Area for Workmen's Dwellings	£50, £30, £15.	W. H. Hickson, Town Clerk, Town Hall, Eccles.
,,	18	Durban, Natal—Town Hall, Library, Museum, &c.	£500, £300, £200.	W. H. Radford, Albion Chambers, King Street, Nottingham.
,,	31	Ashton-in-Makerfield—Infectious Diseases Hospital	Urban District Council	T. Burgess, Surveyor, Council Offices, Ashton-in-Makerfield.
Jan.	15	Kingston-on-Thames—Central Home and Cottage Homes for Children.	£25, £15, £10.	J. Edgell, Clerk to Guardians, Coombe Lane, Kingston-on-Thames.
,,	20	Worthington—Public Library	£25, £15, £10.	W. L. Eaglesfield, Borough Surveyor, Worthington.
,,	31	Cape Town—University Buildings	£400, £200, £100.	Agent-General for the Cape of Good Hope, London.
,,	31	Hull—Town Hall Extension	£300, £200, £100.	E. Laverack, Town Clerk, Town Hall, Hull.
Feb.	13	Patras, Greece—Church	£400, £160, £80.	Committee for new Church of St. Andrew, Patras, Greece.
,,	28	Bridgwater—Appliances for Silt Disposal		W. T. Baker, Town Clerk, King Square, Bridgwater.

Tenders.

Information from accredited sources should be sent to "The Editor" at latest by noon on Monday if intended for publication in the following Wednesday's issue. Results of Tenders cannot be accepted unless they contain the name of the Architect or Surveyor for the work.

Addressed postcards on which lists of tenders may be stated will be sent post free on application to the Manager, BUILDERS' JOURNAL, *Effingham House, Arundel Street, Strand, W.C.*

Blackwell (Mansfield).—For the construction and laying-out of outfall works, including the construction and completion of settling tanks, roughing filters, underdrains, &c.; also the construction of a 15in. cast-iron hydraulic sewer, and other work incidental thereto, for the Blackwell Rural District Council. Mr. Henry Silcock, engineer, 34B, West Gate, Mansfield:—

Saunders, Earl's Court, London	£4,538
W. Theaker, South Normanton	3,398
Lane Brothers, Mansfield	2,776
H. Ashley,* Mansfield	2,699

* Accepted.

Bristol.—For the erection of a new infirmary for the sick poor at Stapleton, Bristol, for the Guardians. Mr. H. P. Adams, F.R.I.B.A., architect, 28 Woburn Place, London, W.C.:—

McCormack & Sons, London	£159,430
Martin, Wells & Co., Aldershot	141,856
Coles	139,459
Downs & Son	135,800
A. J. Beavan	135,000
Stephens, Bastow & Co., Ltd.	134,989
Miskin & Son, St. Albans	134,000
Colls & Son, London	132,812
Parnell & Son, Rugby	132,508
Cowlin & Son	131,258
Wilkins & Son	129,379
Willcock & Co., Wolverhampton	124,250
Gough & Co., London	119,834
Kerridge & Shaw, Cambridge	118,975
Hudson & Son, Nottingham*	114,950

* Withdrawn. [Rest of Bristol.]

Cardiff.—For rebuilding Nos. 6 & 7, St. John's Square, Cardiff. Mr. E. H. Bruton, F.R.I.B.A., architect, 119, Queen Stret, Cardiff:—

Nash & Nash, London	£5,203 15 7
Gough Brothers	4,950 0 0
G. Couzens & Co.	4,925 0 0
Knox & Wells	4,784 10 0
S. Sheldon	4,750 16 0
Parnall Heston, Bristol	4,747 0 0
Beames & Nephew	4,700 0 0
G. Griffiths	4,650 0 0
D. W. Davies	4,550 0 0
G. Hallett	4,550 0 0
Symonds & Co.	4,400 0 0
E. R. Evans Brothers	4,320 0 0
Cadwallader	4,300 0 0
E. Turner & Sons	4,252 0 0
Price Brothers	4,200 0 0
W. Thomas & Co.	4,189 0 0
J. Allan & Son	4,110 0 0

[Rest of Cardiff.]

Compton Gifford and Egg Buckland (Devon).—For the construction of about four miles of pipe sewer of 7in., 9in., 10in. and 15in. diameters, together with all usual appurtenances, and for the construction of concrete tanks and filters for the treatment of the sewage, for the Plympton St Mary Rural District Council. Mr. R. Hansford Worth, 42 George Street, Plymouth, engineer:—

J. Cockerell, Devonport	£8,300 0 0
W. C. Shaddock, Plymouth	8,281 0 0
R. H. B. Neal, Plymouth	7,780 10 0
J. Shaddock, Plymouth	7,509 8 0
S. Roberts, Plymouth	7,157 19 1
A. N. Coles, Plymouth	6 951 0 0
J. C. Lang, Liskeard, Cornwall	6,907 0 4
Hooper Brothers, St. Agnes, Cornwall	6,156 15 4
J. Binns, Croydon	6 015 1 5
A. J. Richards, Plymouth	5,720 0 0
J. Fisher, Millbrook	5,518 11 8
J. Davy,* 7 Youngs Terrace, Compton Gifford, Plymouth	5,810 0 0

* Accepted.

Exeter.—For the erection of detached house at Woodbury Road, for Mr. Burgess. Mr Ernest E. Ellis, architect, Exmouth. Quantities by the architect:—

House.

T. Abell, Exmouth	£1,600
Woodman & Son, Exeter	1,540
W. H. Perry, Exmouth	1,450
H. Dart, Exmouth	1,445
Wescott, Austin & White, Exeter	1,428
W. H. Chowne, Lympstone	1,301
H. Gould,* Topsham	1,245

Plumbing.
Hubber & Son,* Exeter.

Outbuildings.
G. G. Lacey,* Exmouth.

Well.
N. Pratt,* Clyst St. Mary.

Garden.
Godfrey & Symes.*

* Accepted. [Architect's estimate for house, £1,230.]

Hullavington, Wilts.—For the erection of the "Star" Inn, for Col. C. R. Luce. Mr Robert E. Brinkworth, F.S.I., architect, 16, Old Bond Street, Bath (and at Chippenham):—

Donning & Rudman	£1,467 0
John Smith*	1,440 15

* Accepted. [Both of Chippenham.]

London, W.—For alterations to premises, new shop, &c., 45 Dover Street, Piccadilly, W., for Messrs. Spiking & Co. Messrs. Blangy & Van Baars, architects, 12 Southampton Buildings, London, W.C.:—

Sage & Co.	£1,544 0 0
Syme & Duncan	1,500 0 0
Turtle & Appleton	1,445 0 0
Stimpson & Co.	1,365 0 0
Lole & Lightfoot*	1,287 0 0

* Accepted.

London, S.E.—For heating their town hall and offices on the low-pressure system, for the Bermondsey Borough Council. Mr. R. J. Angel, A.M.I.C.E., borough surveyor:—

Clement, Jeakes & Co.	£1,912 0 0
W. G. Cannon & Sons	1,795 0 0
Brightside Foundry & Engineering Co., Ltd.	1,784 0 0
W. Baily & Sons	1,771 10 6
J. Simpson & Co.	1,755 0 0
C. G. Reed & Sons, Ltd., Brighton	1,740 0 0
C. Kite & Co.	1,625 0 0
Palowkar & Sons	1,530 0 0
J. F. May	1,495 0 0
J. Jones & Son	1,450 0 0
A. Dawson & Co., Ltd., Stalybridge	1,445 0 0
W. H. Tilley	1,365 0 0
H. F. Joel & Co. & T. Potter & Sons, United, Ltd.	1,375 0 0
J. Biggs	1,371 0 0
Mather & Platt	1,250 0 0
A. Macintosh & Sons, Ltd., Cambridge	1,146 0 0
Werner Pfleider & Perkins, Ltd., 43 Regent Square, W.C.*	1,120 10 0

* Recommended for acceptance.
[Rest of London.]

Shirebrook.—For sewage scheme at Shirebrook, for the Blackwell Rural District Council:—

S. Saunders, Earl's Court	£4,538 0
W. Theaker, South Normanton	3,398 0
Lane Brothers, Skegby	2,776 11
H. Ashley,* Mansfield	2,699 0

* Accepted.

Southampton.—For the erection of buildings, shop, &c., 50, East Street, Southampton, for Mr. John H, Boyes, butcher. Mr. W. Warwick Neil and Mr. A. A. Burnett, joint architects, Southampton. Quantities by Mr. W. Warwick Neil:—

Dyer & Sons	£1,250
Jenkins & Sons, Ltd.	1,279
Stevens & Co.	1,267
H. Cawte	1,170
C. G. Stent	1,120
A. Wright & Sons*	1,115

* Accepted. [All of Southampton.]

Stratford.—For the erection of depository at Stratford, for Messrs. C. Boardman & Sons. Messrs. George Baines, F.R.I.B.A., and R. Palmer Baines, architects, 5, Clement's Inn, Strand, London, W.C.:—

	Est. "A."	Est. "B"	Extra for Sotsell asphalt.	†
G. F. Hosking	£3,925	£22 10	£20 0	£26
W. Johnson & Co.	3,900	21 0	21 0	25
Mattock Brothers	3,797	36 0	29 0	10
Battley, Sons & Holness	3,729	20 0	18 10	30
Turtle & Appleton	3,685	19 0	22 0	—
F. & H. F. Higgs	3,609	23 0	14 0	—
F. Gough & Co.	3,374	20 0	18 5	40
C. North,* Hanbey Road, Stratford	3,164	30 0	33 0	30

* Accepted. † Credit if Fletton bricks are used.

Wrotham, Kent.—For the erection of house and stable at Hogmore Hill, Wrotham, Kent, for Mr. Charles Garton. Mr. Edward Tidman, C.E., F.S.I., architect, 34, Victoria Street, Westminster. Quantities by Messrs. J. Lee & Sons, 35, Craven Street, Strand:—

	House.	Stable.
W. H. Archer, Gravesend	£2,898 0	325 0
Elmore & Sons, Maidstone	2,880 0	320 0
Corben, Sevenoaks	2,830 0	233 0
Banks, Dunton Green	2,761 10	243 10
Emmett, Maidstone	2,590 0	309 0
Wiltshire, Sevenoaks	2,526 0	293 0
Iggulden, Wrotham	2,508 14	346 0
Kimpton & Ranger, Ealing	2,294 7	302 2
Wood, Maidstone	2,075 5	335 0
Wood & Sons,* Boughton, Monchelsea, Maidstone	1,900 0	210 0

* Accepted on modified plan.

Masters and Men.

The Sheffield Building Trades.—For some months past negotiations have been in progress between the masters and men of the building trades of Sheffield as to a revision of the working rules affecting hours of labour and what is known as "walking boundaries" in the trade. A new set of working rules have now been finally adopted by the masters and men at a meeting held at the Builders' Exchange last week. The chief alterations made in working hours are that in the winter the men will work from eight until half-past four without a breakfast interval, whereas formerly they began at half-past seven and knocked off for breakfast at half-past eight. As to the walking boundaries, these have been extended by one mile, so that in the future there will be no walking time allowed except where the job lies more than two and a half miles from the parish church, and then only for the distance over and above two and a half miles mentioned above. This means, of course, that if a job is three miles away from the town, the men will only be paid for walking half a mile. A new rule has also been adopted by which all lads coming into the trade must be legally bound apprentice before they are sixteen years of age for a period of not less than four years. The most important change in regard to rates of pay is that extra money shall be paid for all work on sewers, culverts and chimney stacks.

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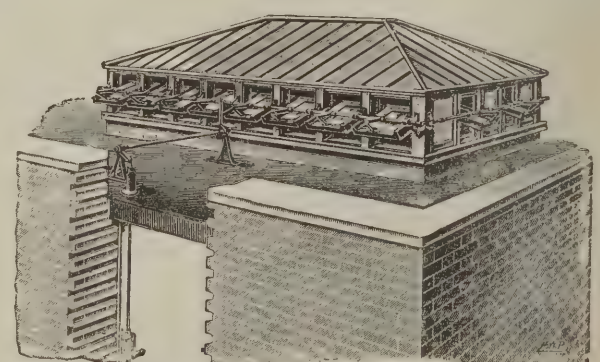
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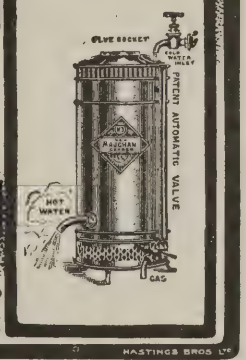
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Coming Events.

Wednesday, Nov. 19.

NORTHERN ARCHITECTURAL ASSOCIATION.—Students' Evening.

BRITISH ARCHÆOLOGICAL ASSOCIATION.—Rev. W. S. Lach-Szyrma, M.A., on "Ancient History of Hainault Forest before the Roman Conquest," 8 p.m.

CHEMICAL SOCIETY.—Meeting at 5.30 p.m

SOCIETY OF ARTS.—Opening Address by Sir William Henry Preece.

SANITARY INSTITUTE (Lectures and Demonstrations for Sanitary Officers, Part I.).—Mr. J. E. Worth, M.I.C.E., on "Sewage Disposal," 7 p.m.

Thursday, Nov. 20.

LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.—Mr. John Wright on "Evolution of an Etching," 6.30 p.m.

SOCIETY OF ARCHITECTS.—Presidential Address by Mr. Silvanus Trevail, 8 p.m.

Friday, Nov. 21.

INSTITUTION OF MECHANICAL ENGINEERS.—Mr. J. N. S. Williams on "Recent Practice in the Design, Construction and Operation of Sugar Factories in the Hawaiian Islands," 8 p.m.

GLASGOW AND WEST OF SCOTLAND TECHNICAL COLLEGE ARCHITECTURAL CRAFTSMEN'S SOCIETY.—Meeting at 204, George Street, Glasgow. Mr. James M'Kissack on "Early French Renaissance Architecture." Discussion opened by Mr. John M. Arthur, 8 p.m.

BIRMINGHAM ARCHITECTURAL ASSOCIATION.—Mr. W. Henman on "The Development of Hospital Design, illustrated by the Royal Victoria Hospital, Belfast."

ARCHITECTURAL ASSOCIATION.—Mr. Cecil C. Brewer and Miss Jane Walker, M.D. on "Some Notes on Sanatoria for Consumptives," 7.30 p.m.

INSTITUTION OF JUNIOR ENGINEERS.—Presidential Address on "The Preparation of Engineering Projects," by Col. Edward Raban, C.B., R.E., Director of Works of the Navy, 8 p.m.

SANITARY INSTITUTE (Lectures and Demonstrations for Sanitary Officers, Part I.).—Mr. J. E. Worth, M.I.C.E., on "Scavenging, Disposal of House Refuse," 7 p.m.

Saturday, Nov. 22.

THE CRAFT SCHOOL (Globe Road, Bethnal Green, E.).—Mr. H. Llewellyn-Smith on "Stage Scenery as an Art," 8.30 p.m.

Monday, Nov. 24.

SURVEYORS' INSTITUTION.—Discussion on Mr. C. H. Hooper's paper on "Compensation for Fruit Planting," 8 p.m.

SOCIETY OF ARTS (Cantor Lecture).—Prof. Vivian B. Lewes on "The Future of Coal Gas and Allied Illuminants"—I. 8 p.m.

SANITARY INSTITUTE (Lectures and Demonstrations for Sanitary Officers, Part II.).—Mr. W. Hunting on "Signs of Health and Disease in Animals destined for Food," 7 p.m.

Tuesday, Nov. 25.

MANCHESTER SOCIETY OF ARCHITECTS (Students' Meeting).—Debate on the Pros and Cons of Competitions."

INSTITUTION OF CIVIL ENGINEERS.—Mr. Thomas Herbert Minshall on "High-Speed Electrical Generating Plant," 8 p.m.

Wednesday, Nov. 26.

NORTHERN ARCHITECTURAL ASSOCIATION.—Council Meeting at 6.45 p.m. Mr. Frank Baker, F.G.S., on "Notes on the Old Rectory at Northfleet, a Typical Timbered House," 7.30 p.m.

SOCIETY OF ARTS.—Dr. Gustave Goegg on "Le Tunnel du Simplon," 8 p.m.

ARCHITECTURAL ASSOCIATION (Discussion Lecture).—Mr. George P. Bankart on "Decorative Plaster Work," 7.30 p.m.

SANITARY INSTITUTE (Lectures and Demonstrations for Sanitary Officers, Part II.).—Mr. W. Hunting on the Names and Situations of the Organs of the Body in Animals," 7 p.m.

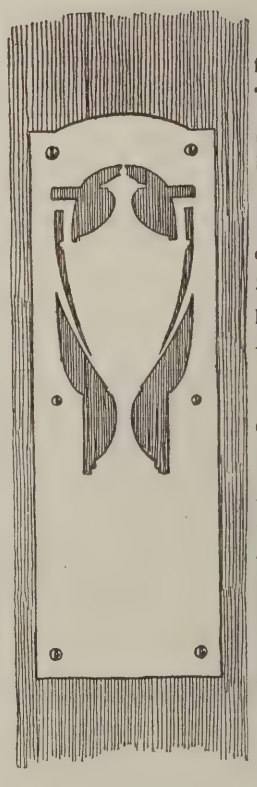
INSTITUTE OF HOUSE AND ESTATE AGENTS.—Dinner at the Connaught Rooms, Trocadero Restaurant, 7 p.m.

Current Market Prices.

		£ s. d.	£ s. d.
FORAGE.			
Beans	per qr.	1 15 0	2 0 0
Clover, best	per load	4 10 0	5 5 0
Hay, best	do.	4 15 0	5 4 0
Sainfoin mixture	do.	4 5 0	5 0 0
Straw	do.	1 8 0	2 0 0
OILS AND PAINTS.			
Castor Oil, French	per cwt.	1 3 11	—
Colza Oil, English	do.	1 1 6	1 3 0
Copperas	per ton	2 0 0	—
Lard Oil	per cwt.	2 13 0	2 14 0
Lead, white, ground, carbonate	do.	1 4 10	—
Do. red	do.	1 0 4½	
Linseed Oil, barrels	do.	1 2 0	—
Petroleum, American	per gal.	0 0 5½	0 0 5½
Do. Russian	do.	0 0 4⅝	0 0 4⅝
Pitch	per barrel	0 7 0	—
Shellac, orange	per cwt.	6 6 0	—
Soda, crystals	per ton	3 2 6	3 5 0
Tallow, Home Melt	per cwt.	1 12 0	1 12 6
Tar, Stockholm	per barrel	1 0 6	—
Turpentine	per cwt.	1 18 4½	—
METALS.			
Copper, sheet, strong	per ton	67 0 0	—
Iron, Staffs., bar	do.	6 10 0	8 10 0
Do. Galvanised Corrugated sheet	do.	11 7 6	11 12 6
Lead, pig, Soft Foreign	do.	10 16 3	—
Do. do. English common brands	do.	11 0 0	11 2 6
Do. sheet, English 3lb. per sq. ft. and upwards	do.	13 10 0	—
Do. pipe	do.	14 0 0	—
Nails, cut clasp, 3in. to 6in.	do.	9 5 0	—
Do. floor brads	do.	9 0 0	—
Steel, Staffs., Girders and Angles	per ton	5 15 0	6 5 0
Do. do. Mild bars	do.	6 10 0	7 0 0
Tin, Foreign	do.	116 0 0	116 10 0
Do. English ingots	do.	116 0 0	118 0 0
Zinc, sheets, Silesian	do.	24 0 0	—
Do. do. Vieille Montaigne	do.	24 0 0	—
Do. Spelter	do.	19 11 3	19 15 0
TIMBER.			
SOFT WOODS.			
Fir, Dantzic and Memel	per load	1 13 0	3 0 0
Pine, Quebec, Yellow	per load	5 5 0	6 5 0
Do. Pitch	do.	3 0 0	3 4 0

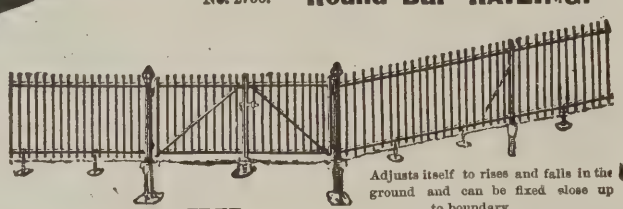
		£ s. d.	£ s. d.
Laths, log, Dantzic	per fath.	4 10 0	5 10 0
Do. Petersburg	per bundle	0 0 8	—
Deals, Archangel 2nd & 1st	per P.Std.	11 0 0	24 15 0
Do. do. 4th & 3rd	do.	10 5 0	15 10 0
Do. do. unsorted	do.	5 12 6	6 10 0
Do. Riga	do.	6 15 0	12 10 0
Do. Petersburg 1st Yellow	do.	16 10 0	—
Do. do. 2nd „	do.	9 0 0	17 0 0
Do. do. White	do.	7 5 0	11 10 0
Do. Swedish	do.	5 15 0	15 15 0
Do. White Sea	do.	12 15 0	15 5 0
Do. Quebec Pine, 1st	do.	17 15 0	18 5 0
Do. do. 2nd	do.	13 0 0	—
Do. do. 3rd &c.	do.	10 15 0	12 15 0
Do. Canadian Spruce 1st	do.	—	12 0 10
Do. do. 3rd & 2nd	do.	9 15 0	10 10 0
Do. New Brunswick	do.	7 15 0	8 0 0

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THE BUILDERS' JOURNAL AND ARCHITECTURAL RECORD

Nov. 26. 1902. No. 407.

Effingham House, Arundel Street, Strand, W.C.

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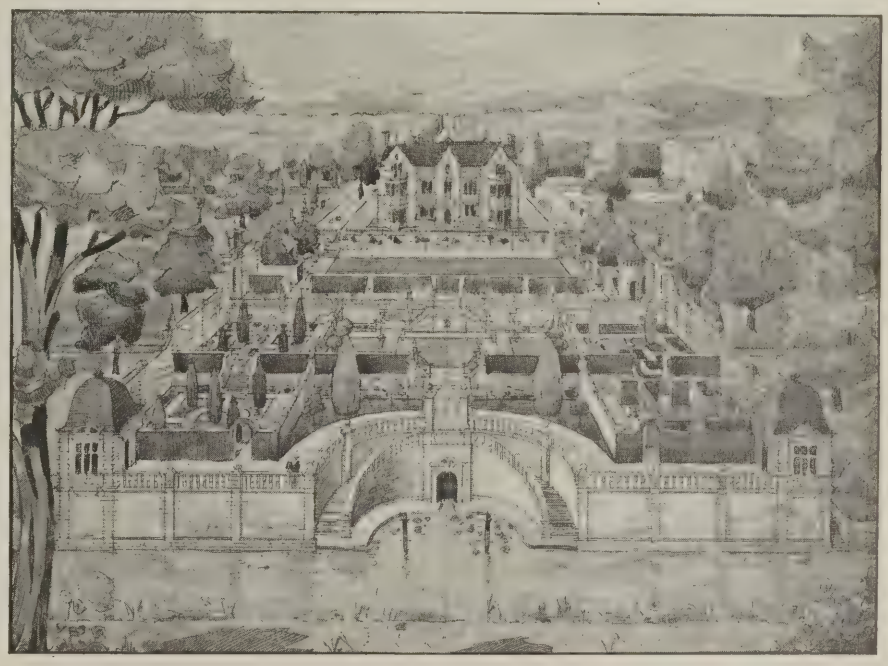
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An Architectural Causerie.

Public Clocks. The great clock at Westminster, with its "clock-case" lifting it nearly 300ft. into the air, the deep boom of the bell, the light burning above which tells when the House of Commons is sitting, are all so familiar now that it is difficult to imagine Westminster without them. Yet the original idea of the architect was something very different; for "lantern towers" of openwork were to have crowned the extremities of the building. The clock has now become an old friend, and his glowing dial is pleasant to see after dark; in common, however, with many famous clocks, the face is not very clear when illuminated, for the iron structure is shown in such a way as somewhat to obscure the hands. The clock of St. Paul's, in the south-western "campanile," is clear and well placed, though not strictly ornamental. The Horse Guards' clock—upon whose face a light is thrown from the front—is very modest in scale, but has set the watches of generations of Government officials. The clock of the Royal Courts at Temple Bar is like the tower from which it projects, hardly worthy of so great a building. On the whole public clocks have not received quite the attention they deserve. Their use is undeniable, but it is rare to find them beautiful, in spite of the opportunities they afford for decoration. A very quaint and splendid clock is that which adorns one side of the Palais de Justice in Paris; it is richly painted and gilt; figures of Piety and Justice stand as supporters on either side; sculptured angels hold shields overhead, and the richest decoration that the Renaissance could suggest has been showered upon it, though not in such a way as to obscure its purpose. It is the work of de Vic, a German, and was placed there by Charles V. of France as early as 1307; the decoration belongs to a later age and is by Germain Pilon. Quite recently Paris has been adorned with two superb clocks upon the flank of the new Orleans Railway terminus looking upon the Seine; gilding is freely used, and the idea is evidently to break up the long line of plain masonry which rises over the river wall; how cleverly the new station itself has been partly sunk and partly restrained in height every visitor to the French capital knows. In Brussels public clocks are set up all over the city by law; they are small and unpretending, and unfortunately do not always synchronise. Of Jubilee clock-towers and others erected for memorials in considerable numbers of late years it is difficult, as a rule, to speak well. In provincial towns they generally exhibit poverty of design; in London there is a commonplace specimen of one at the junction of Victoria Street and Vauxhall Bridge Road. The principal front of a railway station should never be without a clock as conspicuously placed as possible, as at King's Cross, where it occupies a small tower between the two great arches of the departure and arrival sides; the addition of a little ornament is all that is needed to complete this, the simplest and most obvious arrangement for a great terminus. One of the most picturesque public clocks is that known as the *Grosse Horloge* at Rouen; it is placed over a gateway spanning a narrow street, and is surmounted by a high "peaked" roof; it dates from 1389. Two curious customs in treating the dials of public clocks may be noted: one is never to use the Arabic numerals, the other invariably to substitute "IIII" for "IV" in the Roman.

Our Competition. Yesterday was the first of the sending-in days for our new competition—the remodelling of the front of No. 182, Fleet Street, London—particulars of which were given in our issue for October 22nd. Designs will be received up to December 1st.

Architectural Saints. Really, architecture is being too much glorified. The knighthoods were shocks enough, but now Sir Harry Johnston would make saints of us. He has been writing a series of brilliant articles on Ireland for the "Daily Graphic," and in one of them he expresses his views on the saints. If he had his way, he would entirely reform the Irish calendar of them, would give the name of St. Patrick a rest, and have no saints prior to the eighteenth century. Then we should see sanctified Molyneux (one of the founders of the Royal Society of Dublin); "that Duke of Leinster who, during his Viceroyalty in the eighteenth century, promoted the magnificent architecture of the Dublin public buildings, and did so much to introduce an art that still lives and gratifies in many a stately country house; Gandon, the architect of one of the most beautiful buildings in the world—the Customs House of Dublin—and part architect in other monuments," and, among the rest, "the great Guinness family, who have turned the wealth they derive from the making of a wholesale and agreeable beverage to such noble public services, who have restored Dublin's premier cathedral, have bidden the slum to cease and in its place splendid buildings to arise for the housing of the poor, who have presented Dublin with the beautiful park of Stephen's Green, who have endowed hospital after hospital." But if architects are going to be deified in the manner proposed, they will need to be etherealized a little: for there is something too prosaic about trousers and bowler hats to be put into stained-glass windows. There is not the slightest doubt, however, that some of our architects would look very admirable with a nimbus around their heads and a copy of the L.G.B. by-laws in their hands as the Emblem of Righteousness!



DESIGN FOR A TERRACED GARDEN IN CONJUNCTION WITH A HOUSE, BY JAMES GILLESPIE, AWARDED FIRST PRIZE BY THE EDINBURGH ARCHITECTURAL ASSOCIATION.

Views and Reviews.

Verona.

Verona is a microcosm of Italian architecture, a stupendous record of the Lombardic, Florentine, Venetian and Renaissance periods. The Romans once held the place, but the great world-power was overcome by the Northern barbarians and in 568 A.D. the Lombards spread over the fertile plain which now bears their name. Of the Roman period one colossal structure remains, worthy emblem of the race who built it –the Arena—first the scene of animal fights, then of human fights, martyrdoms, jousts, tournaments, bull-fights (for Napoleon), theatrical performances, fairs, sports, horse-shows, races, and, lastly, Buffalo Bill and his cowboys. Despite all the ravages of the Goths and the Huns, this mighty Arena—168yds. long, 134yds. wide, with accommodation for 20,000 sight-seers—survives. Its outer wall was originally four storeys high, but the top storey is now almost gone, though sufficient remains to show how the velarium, that protected the spectators from the sun, was arranged and manipulated. "The interior is in an excellent state of preservation; and the care lavished on this magnificent ruin ever since the fifteenth century, and continued scrupulously to this day, is beyond all praise."

But undoubtedly the finest architectural building in Verona is the church of San Zeno, though "restorers" have done much to it. It is a great church of the twelfth century, embellished with much sculpture. A flight of steps leads down from the doors, "and one's impulse on entering is to stand at the head of those steps and gaze in silent admiration and reverence at the scene before one. It is so grand, so calm, so severe, so solid, and yet so peaceful in the perfect proportion of lines, arches, columns, shafts. The nave extends between two side aisles in a line of faultless symmetry till it reaches in the centre to a double flight of stairs, the one flight leading down to the crypt, the upper and smaller one leading to the high altar and choir. The walls are of brick and tufa (not "tufo" as this book gives it), and opening out of the church are the beautiful cloisters with their twisted columns of red marble; while stretching high in the air is the Campanile finished in 1178.

The Duomo, or cathedral of Verona, is another great building. It is said to date from the eighth or ninth century. "Comparing the arabesque and sculpture of the Duomo here with St. Mark's," says Ruskin, "the first thing that strikes one is the low relief, the second the greater motive and spirit, with infinitely less grace and science. With the Byzantines, however rude the cutting, every line is lovely, and the animals or men are placed in any attitudes which secure ornamental effect, sometimes impossible ones, always severe, restrained or languid. . . . the Lombard building is as sharp, precise and accurate as that of St. Mark's is careless. The Byzantines seem to have been too lazy to have put their stones together; and, in general, my first impression on coming to Verona. . . . is of exquisitely neat masonry and perfect *feeling* here; a style of Gothic formed by a combination of Lombard surface treatment with Pisan Gothic, than which nothing can possibly be more chaste, pure or solemn."

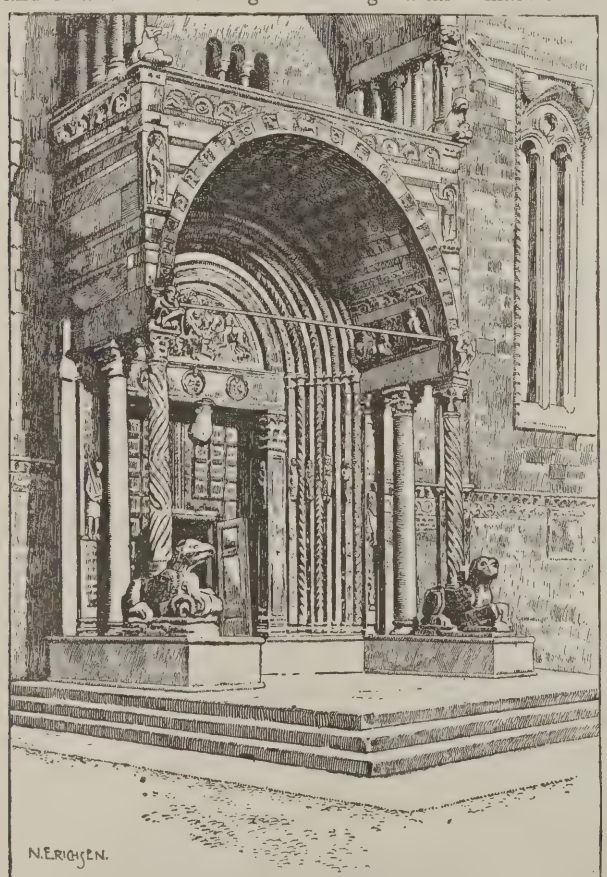
Not far from the Duomo is the church of St. Anastasia, a fine example of brick and marble work of the thirteenth century. The Adige runs by it. To speak of a tithe of its beauties would occupy too much space, but mention should be made of the tomb of Guglielmo da Castelbarco outside the church, a beautiful structure of four white marble columns supporting a rich but simple Gothic canopy, with the effigy below.

The market-place of Verona is the Piazza delle Erbe, with its characteristic umbrella stalls and its column of St. Mark. Leading from it is the Piazza dei Signori, shown by one of the accompanying illustrations. The Palazzo della Ragione occupies one side, now, as always, government offices. In its courtyard is the staircase illustrated on the opposite page (it once had an upper colonnade of Cinquecento work, but about four years ago this was removed).

Just as Paris is a great memory of Napoleon, so Verona has impressed on it the lives of the Scaligers, around whom centred the art, the literature and the romance of the city; and there is no more imposing relic of them than the church of St. Maria Antica and its tombs.

This book forms interesting reading of Verona's glory and its buildings, of the men who made it and died for it: and the text is supplemented by a large number of line illustrations. The three here given show that they are skilful specimens of draughtsmanship — remarkably so for women.

"The Story of Verona," by Alethea Wiel, illustrated by Nelly Erichsen and Helen M. James. London: J. M. Dent & Co., 29 and 30 Bedford Street, Covent Garden, W.C. Price 3s. 6d. nett.



ENTRANCE TO THE DUOMO, VERONA.



PIAZZA DEI SIGNORI, VERONA.

The Art of Alma-Tadema.

We do not consider it to be within our province to notice ordinary easel pictures in these columns, but an artist like Sir Lawrence Alma-Tadema, whose pictures are so full of architectural interest, demands our attention, especially as he is an honorary fellow of the Royal Institute of British Architects. This little book is one of the "Miniature Series of Painters." It is chattily written, and if it does not exhibit any particularly critical knowledge it at least states the facts of the artist's life and describes his various pictures very readably; while, as illustrations, there are eight admirable little reproductions. Tadema's life has been eminently an artist's. He is of Dutch birth, but Holland was not encouraging, and the Academy of Antwerp became his first teacher. Thence he passed into the studio of Van Leys, the Belgian archæological and historical painter, who was then decorating the Antwerp Town Hall with frescoes. Such work had considerable influence on the pupil's career. Tadema married and went to live in Brussels, and here the great French picture-dealer, M. Gambart, commissioned him to paint twenty-four pictures, to be paid for at progressive prices: and these done, he commisssoned him to paint another twenty-four! An accident brought Tadema to London in 1870. Here he re-married and eventually made his home in Grove End Road, which he has transformed into "the most beautiful house in London"—with its silver-walled studio, its onyx windows, its mosaic atrium, its wall decorations and other sumptuous finishings. As for his pictures, we ourselves consider them to be most beautiful in their colouring and exquisite technique, while, in addition, for the architect there will always be in each some reconstruction to appreciate—as, for instance, in "The Coliseum," where we see it entire and not in ruin, with its statues in the arcades, and, against the sky, the stout poles that held the velarium over the arena. The artist received his knighthood from Queen Victoria in 1899. Few architects know so much about old Rome as he. His

pictures are always admirable for their architectural exactness; he has carefully studied the ruins that remain and possesses a most extensive collection of photographs and prints of them.

"Sir Lawrence Alma Tadema, R.A.," by Helen Zimmern. London: George Bell & Sons, York Street, Covent Garden, W.C. Price 1s. nett.

SOCIETY OF ARCHITECTS.

PRESIDENT'S ADDRESS.

MR. SILVANUS TREVAIL, F.R.I.B.A., J.P., delivered his presidential address before the Society of Architects on Thursday evening last, in the course of which he said:—

There is still the same necessity for this Society to keep a vigilant eye upon the business aspects of the profession. Still complaints reach us of wholesale plagiarism, not in the surveyors' departments of our larger municipalities, but in the smaller ones, until serious proposals are made to alter local by-laws in such a manner as shall be a protection to the building-owner's architect. There are just the same difficulties experienced now as then in the intricacies of the ancient lights and air question, with, if anything, so many more good schemes of development and public and private improvements pigeon-holed, because in the absence of some preliminary appellate court the attempt to put them into operation might involve ruinous litigation. Dabbling charlatans are just as rampant as ever, and will not be suppressed until a duly recognised legal status is given to our profession. Each American and Continental State in turn adopts registration, and most of our Colonies, but here we are in the unique position of having a section of the profession itself opposing it. Municipal improvements are proceeding in all directions, some wise, some otherwise, especially those connected with the development of electrical energy, which threaten to produce in many of our more crowded cities abominations to architecture second in degree only to the excessive and vulgar advertising inflicted upon us. Owing to our short lease system of tenure for building sites, our buildings themselves are not nearly so solidly constructed as in countries where either freehold or very long leasehold and perpetual feu obtains. These were points referred to by me in detail last year, and I think you will all admit that they are just as pregnant and pressing to-day.

The Registration Bill.

Wherever one turns, especially in the provinces, this is the first question asked by architects, "What is being done in the matter of registration?"

It has been said that the promoters of the Bill that has already been before Parliament intended to have constituted themselves the arbiters of who should and who should not be admitted into the profession, under the system of registration then advocated. If those making that statement would only take the trouble to study the draft they would find that not only did its promoters not do that, but they provided for the different recognised representative bodies to be adequately represented on the Council, with a preponderating influence to the Royal Institute, who were to have been made the examining body to pass the qualifications of all future admissions under the proposed measure.

It would be well, therefore, if all those architects who have not already seen a copy of the Bill procured one and made themselves fully acquainted with its contents.

Form of Building Contract.

By the courtesy of the President of the Institute of Builders I lately attended the annual banquet of that very influential body, and found there was still irritation upon the subject of a standard form of building contract that had formed the subject of discussion between themselves and the Royal Institute of British Architects from 1886 to 1900. It appears that in the latter year a form was agreed upon that was acceptable to both parties. This recognised the right of a contractor to claim under the arbitration clause for any materials used by the architect's instructions of a more costly description than what was specified. This was accepted by the Council of the Royal Institute, but thrown out at a subsequent general meeting of that body, to the great disappointment of the builders. The equity of the builders' proposal seems so apparent that it is much to be regretted that the question cannot be reopened and the cause for such friction be once and for all removed. I say distinctly that I would never call upon another man to sign what I should refuse to sign myself were our positions reversed, and that either of us would subject himself to the absolute dictation of anyone to put what construction he pleased upon the meaning of a specification, without reference to arbitration, is more than can be expected.

The Competition Ogre.

After referring to technical education the president spoke of the practice of sending "conditions of competitions" not only to public bodies who had already decided upon a competition, but also to every public body that might sooner or later have architectural work to do! "This wholesale scattering of suggestions for competitors is gradually teaching every little building committee to believe that it is just as essential to advertise for plans as it is for tenders, and they are frequently foolish enough to suppose that the one does not involve a greater sacrifice to the competitor than the other, whereas the ratio of expenditure is about 20 to 1 to the victims of the system. I have really been pained beyond measure when I have seen the enormous amount of money and labour expended by architects upon fruitless competitions, and often with the additional wrong of seeing many of their original features plagiarised in that or some subsequent work."

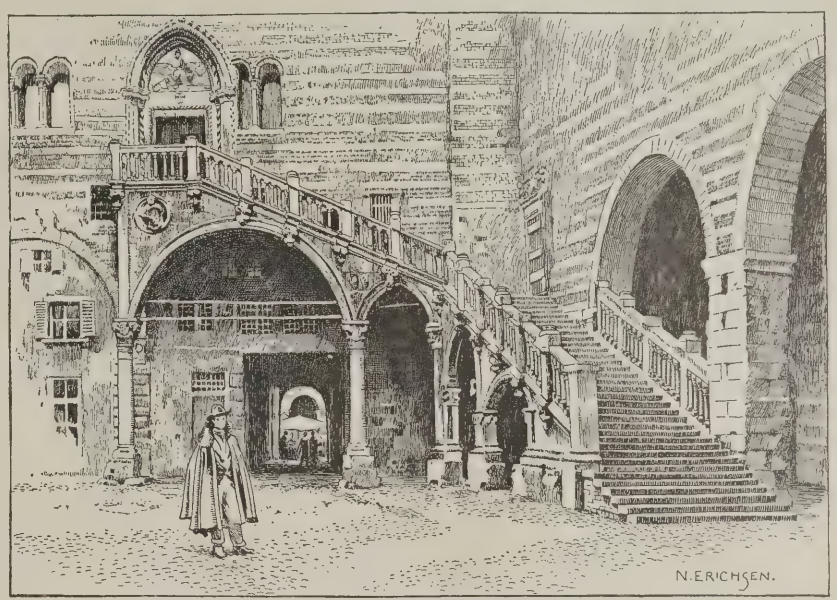
The president next spoke of the craze for big letters and vulgar advertising in our streets, which, he said, ought to be subject to municipal control; then, after making reference to the Holborn-Strand buildings, and the two new Government blocks in Whitehall, he spoke in favour of city architects for London:—

"With a city or borough architect for each metropolitan municipality to advise the several corporations upon questions of public taste and public improvement, with a few well-considered additions to the by-laws in the matter of signs, advertisements and chimney stacks, this metropolis of ours would soon begin to be more endurable, and assimilate more nearly with those places on the Continent where such matters are kept within reasonable control."

Truro Cathedral; Liverpool Cathedral.

"In the provinces the two architectural works that stand out just now perhaps more conspicuously than any others are the two cathedrals. One, Truro, just approaching completion; the other, Liverpool, just in the throes of the second competition. Truro is now so far advanced that we can pretty well realize what the effect will be when the scaffolding and hoarding come down. Future generations will, I think, recognise in it some of the most perfect specimens of mediæval art in the kingdom, the architect of which had the opportunity of designing a complete edifice, though unfortunately not to witness its completion. The name of Mr. J. L. Pearson, R.A., will go down for all time as one of our most skilful mediæval architects, and the building, though of course not nearly so large, will rank with Lincoln or Salisbury for artistic merit. In its planning and in the grouping of its various parts, whether externally or internally, it will always preserve its identity as a striking mediæval cathedral church, with an individuality of its own. It is a pity that for economic reasons some of its most prominent mouldings are executed in a soft stone, where, from greater exposure to atmospheric conditions, it is bound to decay first, but it will outlive this generation and possibly this century, when those who come after will have a comparatively light task to renovate by side of the one that has been undertaken by the generation, now passing away, who put it there.

"Of Liverpool we can say little yet, only await with great curiosity the design finally selected. When that appears it will be a matter of great interest to observe how far a modern cathedral for a great population like Liverpool departs from the old established lines of mediævalism."



THE OUTSIDE STAIRCASE, PALAZZO DELLA RAGIONE, VERONA.

BUILDING CONSTRUCTION.—II.

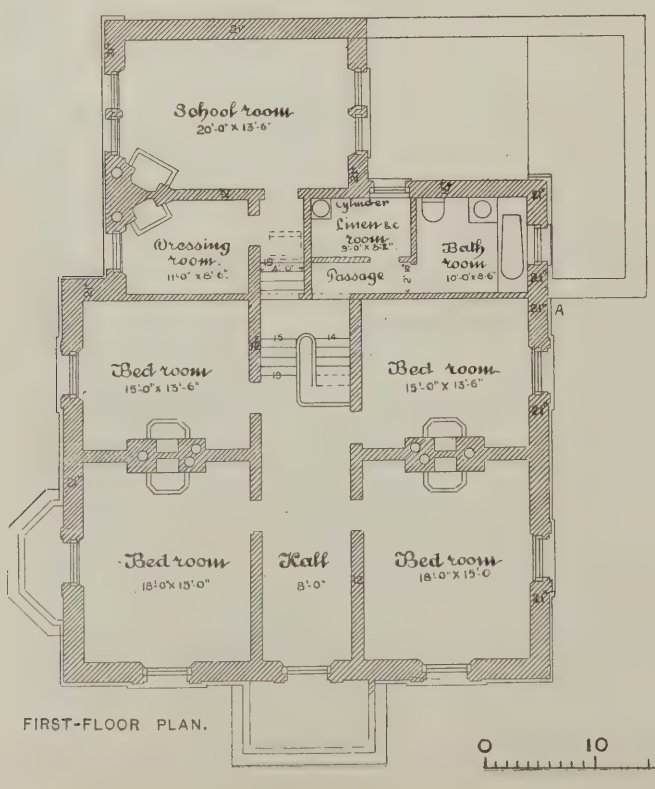
[By Our Special Contributor.]

(*Continued from p. 220, No. 405.*)

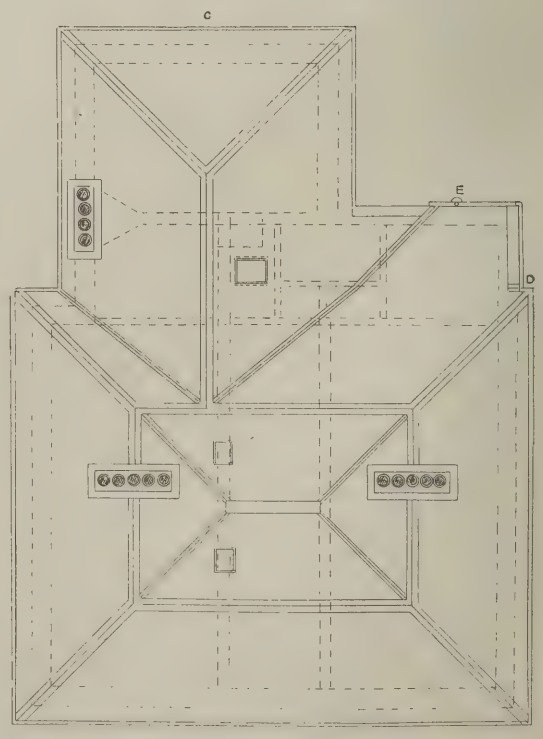
IN the production of a house there is first the man who requires the house for specific purposes, second the man who designs it, third the man who supervises its construction, and fourth the men who do the work. In the construction of primitive structures one man combined all these functions: as with animals differentiation of function marks "elevation" in scale, so it is with buildings. I might push the idea of differentiation much further than I have done and separate the various trades, with their respective foremen and departments of trade, and so on without limit. My aim is not to give an idea of complexity but of simplicity; for this purpose I set before me the task of building one house. I may, however, be found to make it as various as one modest house can be made to be, whenever it strikes me that something appropriate may be said in reference to different conditions of material, &c. The man who designs a house calls himself an architect; to be so, indeed, he must be able to place himself more or less exactly in the point of view of all the different men concerned, and this mostly apart from the "art" of his profession. This house gives the accommodation desired by the owner within the limits of cost which he can afford; it may easily be shown that the design could be improved—there is not a servants' living-room, for example; the room called a "dressing room" has not a door to the bedroom, &c. Most of such criticisms are disposed of by saying that this house is not a book house: it has been built for the family that it suits. The cement-mortar used in building this house is a good mortar; it happens also to be the cheapest good mortar in the locality, a not unusual condition of affairs in a granite district. The house is built almost totally without brickwork (bricks are used about the kitchen range but nowhere else); this, however, will not prevent reference to brickwork as alternative construction in localities where bricks are available. The student should obtain a sample of Portland cement; he should himself wet it as "neat" cement, mix it with various proportions of sand, and wet the mixtures; he should measure the mixtures, and he should take notes of his own work of mixing and measuring; for this purpose quarter-pound cocoa-tins are useful; larger measures must be used for experiments with gravel and broken stones as "aggregate" for concrete. It is important for the student to know intimately this very essential modern building material, *Portland cement*: its manufacture is a large industry: its constituents are few and simple and they are fairly abundant. The student should read about it, and become familiar with it by actual handling. Elaborate instructions are given for the testing of Portland cement, and it is of the very utmost importance that it shall be of good quality and condition, but in a small work of this kind, as a rule, there is no "testing" of the cement. The architect is expected (especially where his specification is subjected to the criticism of officials) to specify tests for Portland cement; in ninety-nine cases in a hundred these tests are not made. In important engineering works, where large quantities of cement are delivered from time to time, tests are regularly made, and this testing has in course of time worked up the manufacturers to very general excellence, so that if we get cement in good condition made by any of the large manufacturers we may fairly depend upon its being a good article. There is sometimes a suspicion that a "spoiled" lot may be sent to out-of-the-way places, but it is unnecessary to say that this will never happen with makers who have a really good name to lose. The effective testing for small consumers is done by the manufacturers themselves. Cement made by good makers may be carelessly stored, and it may become absolutely worthless; which means, if such cement is put into work, disastrous. I have met with a sample of cement made by good makers which had totally lost all "setting" properties. An experienced man knows good cement-mortar and concrete in the work; the student by means of observations and direct experiment should learn this knowledge, and if he has access to a cement-testing apparatus he should carry out the recognised tests with all care. It may be observed that the test of fineness is doubtful, owing to the difficulty of keeping fine sieves clean and clear: fineness is an important point: but for practical purposes it is probably safer to substitute for it a standard tensile strength for briquettes for which the cement has been "gauged" with a definite proportion of a standard sand (say 1 of cement to 3 of sand). The workman's test when he dips his arm into a sample of cement from a good maker is a fairly safe one. The cement should feel neither warm nor cool. Some books say the cement should be of the same temperature as the man's arm; this is nonsense, as a



SIDE ELEVATION.



FIRST-FLOOR PLAN.

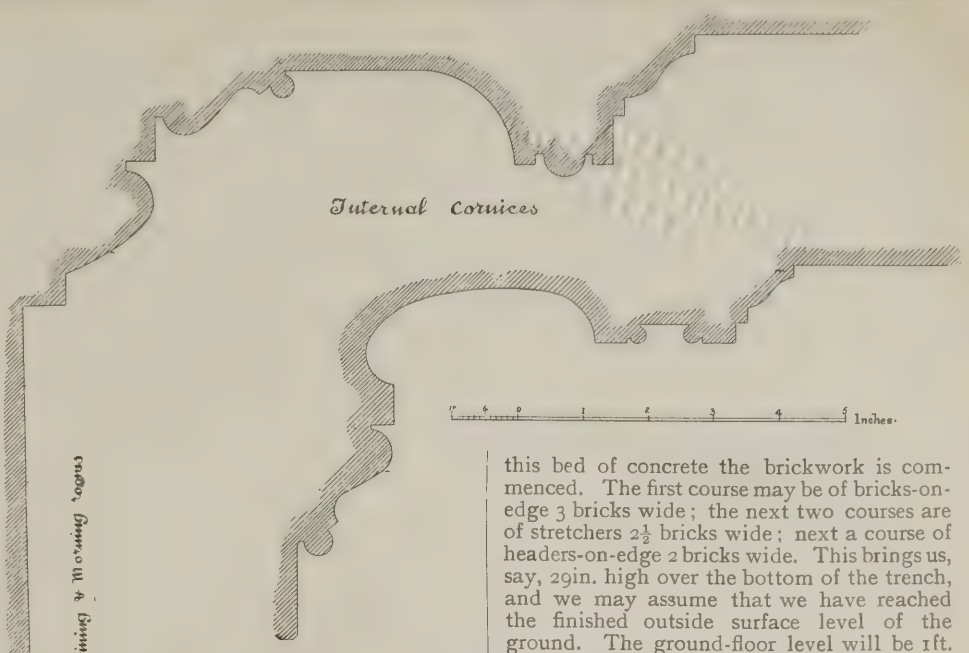


ROOF PLAN.

0 10 20 30 40 FEET

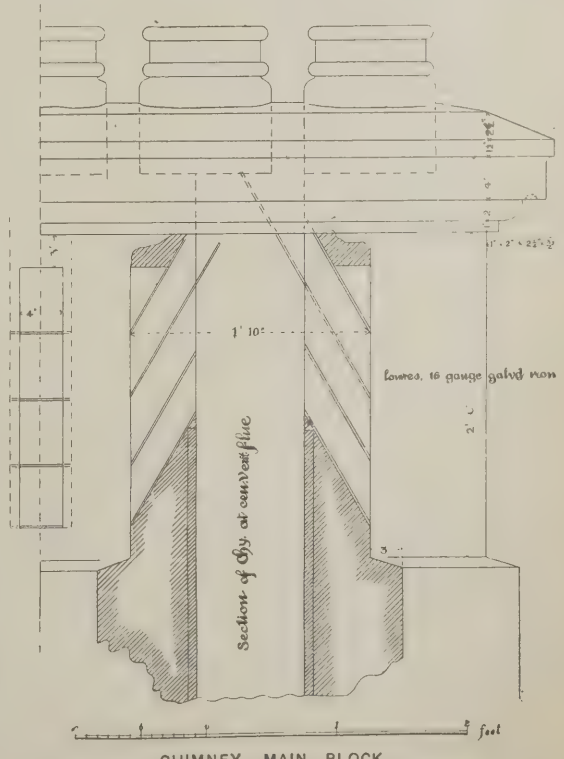
thermometer will show. If the cement feels warm it has not been sufficiently "air slaked"; when mixed with water it will expand (as rich lime does, but in a much less degree), and cement should not expand in this way. (There may be considerable trouble of this kind with hydraulic lime. I have seen heavy engineering retaining walls badly cracked and put out of shape by the swelling of the hot lias lime with which they were built.) If the cement does not feel cool it is because it is a bad conductor of heat—it is dry and the air contained between its fine particles is dry: if it feels cool the particles have more or less completely already "set," they are inert: the included air is moist and cools the workman's arm. It has been already pointed out that cement-mortar should be used in reasonable thickness. My own experience has not given me confidence in the continued adhesiveness of cement-mortar to common stock bricks. Bricks may be enclosed in a matrix or frame of cement-mortar, and in this way held fast, but cement-mortar very imperfectly adheres to brickwork of this kind, as may be seen by inspecting any brick stuccoed or cement-plastered parapet which is known to be, say, ten years old. If bricks are to be used for such work, let them be hard blue bricks, and let the work be built throughout in cement-mortar.

For detailed information as to the chemical composition and character of Portland cement and the process of its manufacture the student should consult a special treatise on the subject, and he should, if he easily can, visit a cement works and have the process explained to him by the foreman or manager. Cement-mortar differs from lime-mortar in the degree to which it may be relied upon to give the masonry strength to withstand tensile stress. In this view, the mortar should adhere to the stones, and to make adhesion good the stones should be clean; the cleanest stone is one that is freshly fractured. Much better work will be done with cement-mortar (made with coarse, gravelly, but clean, sand), plenty of it, and medium, variously sized, stones, clean, freshly quarried (before any kind of lichen or other organic coating has had time to come upon them), than can be done with brickwork in cement. Work of this kind may be called built concrete: it may be faced as rubble masonry, or it may be built rough on the faces, and these afterwards finished smooth in cement-plaster. Work of this kind should not be marked on the face to imitate the jointing of ashlar. The drawing shows rubble facing: the actual house was finished smooth. The facing work should be done by a plasterer, and great care must be taken to prevent unsightly joints between the various stretches of work; one of the purposes served by the ashlar lines is to hide such joints; in this case no difficulty was found in finishing the work in complete panels without joints of any kind. Owing to the cost of cutting granite, the dressings, quoins, reveals, strings, &c., were formed of concrete in moulds as separate blocks or "stones," and they were set by the masons in the usual way. The thin inside walls were formed of concrete in moulds, *i.e.*, the space to be occupied by the wall is enclosed between two skins of planks set up accurately and stayed to keep them true. The planks are set up on edge, and they are gradually added on as the wall increases in height. The thicker walls were built against one facing of planks; small displacers were used so that the work is a kind of "built concrete," care being taken not to have too great a height of fresh work at any time. The fireplaces were built around boxings; the flues were carried up in the walls by means of drums (see Fig. 84, Building Construction, BUILDERS' JOURNAL, December 18th, 1901. Students are referred back to that article and the succeeding one



—December 25th, 1901—for details which are not here repeated).

In many parts of England work of this kind would be unsuitable. The most easily available building material is brick. To build this house in brickwork would involve some change in the drawings; owing to brick walls being thinner than stone walls, either the rooms would be somewhat larger or the outside dimensions would be smaller than as shown on the drawings. Bearing this in mind, and assuming the site to be clay, it will be advisable in these countries to carry down the bottom of the walls to at least 2ft. below the finished surface of the ground, so as to be beyond the reach of frost. Frost has not the same injurious action upon good mortar that it has upon clay. It has been noticed that wetting sand makes the particles draw closer together. Clay behaves in an opposite way; water appears to separate the fine particles of clay; water added to clay increases its bulk; every practical man knows that the repeated freezing and thawing of the clay on which a house rests is to be guarded against; the brickwork is therefore carried down below the region of frost. The surface of the ground is subject to alternations of heat and cold from above—the sun, radiation, cold currents of air; and there is the steady passage of the internal heat outwards. The variation of temperature is greatest at the surface, and as we pass downwards a point is reached not far from the surface where the temperature of the ground is nearly the same, winter and summer. An approximate estimate of the weight of the walls and the loads upon them should be made; in the present case it is about 2 tons per ft. run for the main walls; it is assumed that the clay at the bottom of the foundation trenches will safely sustain 1 ton per sq. ft.; it is advisable in an estimate of this kind to be on the safe side. The trenches for these walls should be opened 2ft. 6in. wide; and to give a fairly even bearing, from 9in. to 12in. deep of moderately good concrete is placed on the bottom of the trenches, and on this bed of concrete the brickwork is commenced. The first course may be of bricks-on-edge 3 bricks wide; the next two courses are of stretchers 2½ bricks wide; next a course of headers-on-edge 2 bricks wide. This brings us, say, 29in. high over the bottom of the trench, and we may assume that we have reached the finished outside surface level of the ground. The ground-floor level will be 1ft. higher than this. The next course is a "damp-proof" course. If we have been building with cement-mortar the "damp-proof" course which I prefer is a course set on a good thick bed of extra good cement-mortar (say 2 to 1) and the joints left unfilled; on the top of this course place tarred paper to prevent the mortar of the next bed from falling into the joints; for those walls where the ends of the ground-floor joists meet the wall, this course and any others to the level of the tasselling are 2 bricks wide. It is not unusual to direct that the ground beneath wood ground floors is to be excavated to at least 1ft. 6in. below the joists, and that the surface is to be covered with brick and old mortar rubbish. I prefer to put in a bottoming of broken bricks, small-sized stones, &c., and cover the whole with sheet of fairly good concrete which may reach within 2in. of the bottom of the joists. In this case "dwarf walls" are not needed; the joists may be somewhat lighter, and they will rest on cross-pieces laid upon the concrete. The ventilating damp-proof course is sufficient for ventilating purposes; the



CHIMNEY, MAIN BLOCK.

face joints should be lightly pointed to keep out small animals; definite ventilators should be put in at intervals and the openings of these (gratings) should stand at least 2ft. above the ground, so that the air which will reach the space beneath the floor by diffusion shall not be the damp saturated air of the ground. My experience of such floors is that they are satisfactory even when they are not deliberately ventilated; the dryness attained by them is such that even very well seasoned, well cramped and laid, tongued, and grooved flooring shrinks sufficiently to allow the space to be well aërated. If the mortar used is good cement-mortar, the outside walls to the bottom of the joists of the first floor may be a brick-and-a-half wall, and from this to the top it may be a one-brick wall. Brickwork in cement-mortar should be built with fairly-thick beds and joints (not less than ½in. thick). The bricks should be wetted, but not too wet; cement-mortar needs to be accurately tempered; if the bricks are too wet the cement will run and spoil the appearance of the work and seriously injure it. Brickwork in cement-mortar gives much greater freedom in the matter of bonding than when in common lime-mortar. There is a kind of bond which has gradually come to be known in books as "garden wall bond," showing in the face three courses of stretchers succeeded by a course of headers. This bond in many brick-built towns is very common in walls which are not turned to the street; its frequency is probably owing to its being a very easy bond and favourable to speedy bricklaying. I visited Belfast this year for the meeting of the British Association, and I noticed the increasing use of this bond in that city, not in out-of-the-way walls and places but in the very best buildings. An apparently fine piece of new brick building near the Great Northern Railway Station is in this bond, and the regular bands of header ends slightly different in colour from the stretcher bands have a good effect. It is time that this bond had a more dignified name than "garden-wall bond"; done in cement-mortar, it is a good bond; it is pleasant to look at; it is capable of good colour effects: I would propose to name it *Belfast bond*. The thick cement-mortar joints which I advocate are said to be unsightly by some of my friends; this is not, I think, the case; they are fitting and necessary for good work. The advantages of cement-mortar are obvious it provides a stronger and more waterproof wall with less thickness. There is frequently trouble with brick walls in exposed situations to make them water-tight. For myself I declare in favour of battening and lathing all outside walls, whether they are in themselves water-tight or not. The objection commonly made to battened walls is that they "harbour vermin." I do not find it so, because I make a point of stopping the space carefully at each floor; there is much less risk of rats or mice making their home here than between ceilings and floors. If the ground floors are concreted and the battening stopped at floors, there is no inlet and no harbour for rats or mice anywhere.

The offset of 4½in. at the first floor gives a bearing for the joists without needing to let them into the walls. The common practice of building in a piece of timber 3in. deep and 4½in. wide, on which to rest the ends of the joists, is a very bad one. In my practice I avoid it by laying a piece of strap-iron for a tasselling. Carpenters object to this iron because they are in the habit of driving a stitching nail through the joist into the tassel when spacing, and they cannot do this where the tassel is an iron strap. The matter does not arise in the case of the house we are dealing with, because the joists do not enter the wall at all; they rest in the usual way on a tassel or wall-plate 3in. by 4in., laid on the offset where the wall changes from being 1½ brick to 1 brick thick. To return to the question of battening (sometimes called studding and sometimes stoothing) outside walls: besides ensuring that the inside surface of the walls will be dry, the non-conducting cushion of air enclosed between the plaster and the wall makes a warm and comfortable house.

The usual mode of working flat arches at the heads of outside doors and windows is bad and weak; there is usually no heading bond for the full depth of the area (two bricks); very frequently the inside lintel is given too much wall-hold. I recommend a light wood lintel with some rough spikes driven irregularly into its top surface, having slight wall-hold and either a concrete lintel or very wide jointed brickwork over, and having some headers from the face into the concrete. I reiterate my approval of *thick* beds and joints of *cement*-mortar, and further my approval of fairly thick joints where the sand in stone lime-mortar is clean, sharp, and fairly coarse; but I am in full agreement with the advocates of fine jointing if the mortar is the rubbish, ground and mixed in mortar mills, such as may be seen put into work all over London. The less of this compound one can have in walls the better. Students should visit brickfields and see the process of brickmaking; they should see lime-burning; they should experiment with lime and cement and sand, using simple measures (such as cocoa-tins); they should visit any quarries close to them and see the operation of quarrying. The granite of which the house before us was actually built was quarried close to the site; large-sized stones are not needed, nor is much dressing of any kind needed for the backing; but if the work is to show a neat masonry face, labour must be expended upon the face stones. Backing stones may be got of irregular shapes by blasting large masses of rock with powder; moderate-sized facing stones are obtained by drilling rows of holes in large stones and by means of plugs and feathers cleaving the rock along these lines. No amount of reading in books can do away with the need of observation and experiment on the part of the student. The stonecutter's tools needed for dressing the face stones are punches, pitching tools and hammers; there was a clause in the specification objecting to any punch- or chisel-marks showing on the face of the stones.

(To be continued.)

TOUTING.

A FIRM of London architects has sent us two printed circulars, which were handed to them by a firm of bakers (presumably their clients). These circulars emanate from a certain architect and surveyor at Haverstock Hill, who has apparently been sending them broadcast with "Important to Bakers" stamped on the envelopes. One of the circulars solicits architectural work—plans of houses, shops, drains, quantities, &c.—on reasonable terms; the other runs as follows:—"To Bakers and Confectioners, Dear Sirs, Factory and Workshop Act, 1901—Bakehouses—As you no doubt are aware under the above Act, underground bakehouses are prohibited from use which have not obtained the councils certificate before January 1st, 1904. Bakehouses not underground have also to be put in conformity with this Act. As it is advisable to get this certificate as early as possible, I shall be pleased to prepare the necessary plans and conduct the negotiations for obtaining same without delay. I enclose my circular and beg to draw your attention to same."—We need only say that touting is not recognised by the architectural profession as honourable.

RURAL BY-LAWS.

Correspondence in "The Times."

THE following letter from Mr. Lacy W. Ridge, F.R.I.B.A., recently appeared in "The Times":—

"I am desired by the President of the Royal Institute of British Architects to call further attention to the important subject of building by-laws in rural districts, mentioned by Lord Hylton in your issue of Friday last. I have attended twice with deputations from the Institute at the Local Government Board, and it has, I think, come to be at least in part recognised that the Department has in times past erred in not protecting the public from enactments which are unnecessary and vexatious, and extending far beyond that which any public interest requires. The Department has failed to recognise that the liberty of the subject is diminished by every power conferred on a local authority; that having to supply copies of drawings and to ask for approvals is in itself extremely vexatious where no need for such things exists; and that their view that by-laws should be administered after the laws of the Medes and Persians, whether applicable or not, is reducing local self-government to an absurdity.

"The misfortune is that this system of unnecessary officialism has been established in so many places, and vested interests created. Local agitation seems to be the next step necessary to relieve the public from this mischievous interference and the expense to the already over-weighted rates of its administration.

"Only on Saturday I came across a case where a rector had put up an iron room for a village club in a glebe field more than 100yds. away from any house, but because it was not in brick he had to enter into an agreement to remove it at ten days' notice under the Draconic penalty of £2 a day. He had the admirable reason for not building in brick that he would not saddle himself and his successors with the permanent maintenance of the building; but his successful village club now exists at the mercy of any local busybody who may demand its removal."

In the same issue of "The Times" the following letter appeared from Mr. H. D. Searles-Wood, F.R.I.B.A.:—

"Referring to Lord Hylton's letter in your issue of November 7th, the Local Government Board in 1901 issued a series of model by-laws for rural districts in which many of the irksome regulations which refer to the materials used in building are omitted, and the by-laws are limited to strictly matters of public health. Any rural district authority can revise their existing by-laws in accordance with this new model. The introduction to these by-laws states:—

"'It has been represented to the Board that it would be useful if a series of model by-laws were passed dealing only with the subjects which are most in need of regulation and control in a rural district from a sanitary point of view, and omitting the requirements usually found in a code of by-laws in force in an urban district. They are confined to matters affecting health, and are limited to the subject-matters, viz.:—

"'1. The structure of walls and foundations of new buildings for purposes of health.

"'2. The closing of buildings unfit for human habitation.

"'3. The keeping of water-closets supplied with sufficient water for flushing.

"'4. The observance and enforcement of such by-laws by requiring notices and plans.'"

A Reredos by Mr. Bodley has been erected in St. Oswald's Chapel, in the south transept of Peterborough Cathedral. It is of white alabaster, and is in memory of Dean Argles.

Bricks and Mortar.

Aphorism for the Week.

The sculptor must paint with his chisel; half his touches are not to realise, but to put power into, the form.—RUSKIN.

Our Plates. "THE PASTURES," North Luffenham, Rutland, was designed by Mrs. C. F. A. Voysey for Miss G. C. Conant, and is now being built in brick cement rough-cast, the roofs curved with Colbyweston slates, and the ground floor paved with Castle Hill stone in large slabs. The contractor is Mr. S. F. Halliday, of Stamford. —The design by Mr. James Gillespie for a terraced garden in conjunction with a house was submitted in competition and awarded the first prize of £3 3s. by the Edinburgh Architectural Association. A plan of the site, with sizes, levels, &c., was given, and a tennis lawn and pavilions in stone were to be included in the design.

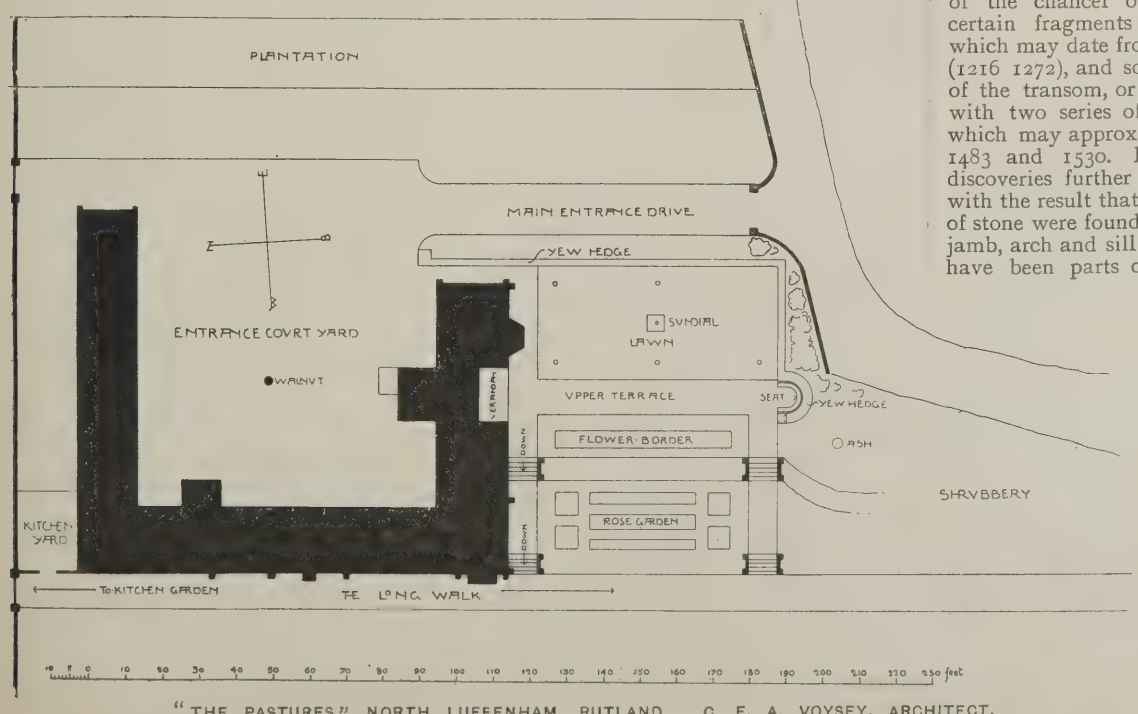
Mr. Pegram. MR. HENRY A. PEGRAM, who has just been commissioned to make a bust of the late Cecil Rhodes for the Guildhall, is already represented in St. Paul's Cathedral. Some years ago he modelled the large candelabra which, cast in bronze, have been placed at the west end of the nave. Mr. Pegram found his motive in the Canticle, "Benedicite Omnia Opera," and on successive levels represents the three races of mankind, beasts of all sorts, birds, the earth, symbolised as a sphere covered with flowers and girdled by the sea, the firmament, and, dominant, the sun, surmounted by archangels who support the rose, whence springs the cross. Mr. Pegram's first important work, exhibited at the Academy in 1888, and at the Paris International Exhibition in the following year (where it secured a bronze medal), was "Death liberating a Prisoner"; to 1896 belongs the realistic "Labour"; and the "Fortune" of 1900 will be within the recollection of many. He is one of nineteen sculptors nominated for Associateship of the Royal Academy.

The Nile Dam and the Philae Temples. Now that the great Nile dam has been constructed, the island of Philæ will be partially submerged each season when the reservoir is full. Most of the temples and buildings on the island will during this period be covered with from 2 to 4 mètres of water, except the great Temple of Isis. It is satisfactory to note that the risk of damage to these beautiful ruins has been obviated by underpinning all the important parts by strengthening them with steel girders. The exploratory work and the underpinning was executed under the supervision of Dr. Ball, of the Egyptian Geological Department; Mr. Talbot, specially selected by Sir B. Baker, to whom the plans had been submitted; and Mr. Roberts, masonry inspector. The work was extremely delicate, but the foundations have been strengthened with great skill with a solid foundation of rubble masonry. The financier who made it possible for the contractors to accept the terms laid down by the Egyptian Government, who were advised by Mr. (now Sir Eldon) Gorst, was Sir Ernest Cassel.

An Indian Art Building. CONSIDERABLE progress has been made with the building where Indian art will be displayed at Delhi. It will be an imposing structure. The site has been excellently chosen on rising ground just outside the Cashmere Gate of the city. Descending from the building to a small stream is a series of terraced gardens, watered by fountains and having here and there picturesque mosques. Designed in the Indo-Saracenic style, the building is more than 200ft. long. The façade is divided into three parts, and the main entrance to the exhibition will be through arches between octagonal towers 75ft. high. The front is being covered with white plaster, touched with gold in places; blue and white Multan tiles are being used in the decoration of the panels in the towers and the spandrels between the arches. The main entrance leads to a broad vestibule and thence to the centre of the principal gallery, which runs the whole length of the building and is 200ft. long, 30ft. wide and 24ft. high. Here will be the great display. At the western end of this great hall will be a house front with gallery, brought bodily from Bhurtpore and re-erected in its original materials. In arranging the exhibits Dr. Watt has been concerned not so much with provinces and states as with the material forming the basis from which the article is made. Gold, silver, copper, brass, iron, wood, stone and textiles will all have their respective sections. Walls will be devoted to the illustration of various styles of Indian architecture, and the schools of art at Bombay, Madras and Lahore, and the Government of Burma will each decorate and furnish a small room in its own particular manner. The Viceroy will declare the exhibition open on December 30th.

Disintegration of the Sphinx. THE marvellous way in which the monuments of the past have been preserved in Egypt is due chiefly to its rainless climate. For ages the regions of the Lower Nile were watered solely by the river, and beyond the limits of its annual overflow the ground was perfectly dry. The tins left by Napoleon's army lay on the sand for nearly a century bright and unrusted. But, says the "Daily News," the climate of Egypt is gradually changing. Extensive tree-planting has gone on for a long time past, and irrigation works have produced moist and fertile land where formerly stretched the barren desert. Thus rain is gradually being attracted, and while a few years ago a shower was a novelty, there are now considerable falls of rain. The effect is seen in the crumbling of the Great Sphinx at Gizeh, near the Great Pyramid. This vast monument is 172½ft. in length and 56ft. high, hewn out of a projecting spur of the rock which rises out of the sand. The head is sculptured, and represents a woman in the old Egyptian head-dress, the body being that of a lion, formed by the natural reef of porphyry, with additions of masonry to complete the shape. For more than a generation the monument has been more or less defaced owing largely to the attentions of early tourists, and the nose has long been absent. But now the rain is beginning to assist in destroying the Sphinx. The wet softens the surface of the stone, and fierce sand storms then grind the outer surface away.

Discoveries of Bermondsey Abbey. THE Historical Records and Buildings Committee of the London County Council report that during the recent excavations made in connection with the erection of working-class dwelling by the South-Eastern Railway Co. on land belonging to the Council in Abbey Street, Bermondsey, some interesting discoveries were made of the remains of Bermondsey Abbey. The finds include some pieces of masonry, consisting of Kentish-rag, which would appear to have been the foundations and lower courses of the chancel of the old abbey church, certain fragments of wrought stonework which may date from the reign of Henry III. (1216 1272), and some pieces, probably part of the transom, or head of a glazed screen with two series of foliations, the dates of which may approximately be fixed between 1483 and 1530. In consequence of these discoveries further excavations were made, with the result that several additional pieces of stone were found, consisting of remains of jamb, arch and sill stones of what appear to have been parts of a large perpendicular window and doorway, pieces of a hood-mould and arch of Early English character, part of a moulded plinth and a piece of shaft. One or two of the stones show traces of polychromatic decoration. A plan has been made showing the position on the site of these discoveries and also drawings recording the mouldings on the wrought stones. The remains have been moved to the Horniman Museum.



"THE PASTURES," NORTH LUFFENHAM, RUTLAND. C. F. A. VOYSEY, ARCHITECT.

BRICK-MAKING.*

By GEORGE L. ALLEN.

IN making clay into bricks the only forces that can be used are natural crystallization and artificial cohesive attraction. The former process is best suited to clays naturally plastic, and the latter for dry clays; while a combination of the two may be satisfactorily employed in treating certain classes of raw material. These methods may be termed the plastic, the dry press and the semi-plastic, and the manufacturer who wishes to found a successful business must satisfy himself at the beginning as to which method is most suitable for his material.

Plastic Clay Bricks.

In making plastic clay bricks one very important matter is to see that the clay is well mixed at the face. The waggon which conveys the clay to the machinery should contain a regular admixture of the various stratas of the clay bed, as different sections usually require different treatment in drying and burning.

It is important that the physical or natural condition of the clay should be entirely broken up, and this should be accomplished, as far as possible, by first passing it through a mixing mill and rollers before it reaches the pug-mill. The pug-mill alone is too often relied upon for thoroughly mixing and shredding the clay. The duties of the pug-mill are to consolidate the clay and press it through a die into a continuous column. This column should be thoroughly compact, free from lamination, and have a fine, polished surface, clean and unbroken at the corners. Several machine makers are now making a speciality of a double-shafted pug-mill, fitted with expression rollers, to produce this result.

Cutting-Table.

A most convenient hand-power cutting-table is one which travels longitudinally as well as laterally—known as the "Simplex" cutting-table. The whole operation is performed by one attendant with one handle. A few power cutting-tables are in use, some automatic and some not; but it is evident that, to supersede a hand table that requires but one attendant, the coming cutter must be automatic. The "Raymond" and the American Clayworking Machinery Co.'s automatic cutters have a most harmonious arrangement of all parts, and make a perfectly straight cut.

Driers.

The old-fashioned system of open-air drying is, or ought to be, a thing of the past. Nowadays drying floors and tunnel driers are recognised necessities. Tunnel driers are of recent introduction into this country, but already some are giving good results, though their increased cost of construction may be against their general adoption for some time. The requisites in a drier are:—Non-liability to damage the green bricks, perfect regulation of the heat and air circulation, economy in construction and working; and the method which best achieves these results can only be obtained by varied experiment and careful observation.

Kilns.

The modern continuous kiln is fast superseding older types; it is being rapidly perfected, and the day is not far distant when it will be used for burning all kinds of material. A continuous kiln, to give the best results, must always be built to suit the material it is intended to burn, and the nature of the material must always be taken into consideration in designing the kiln.

Dry-Press Bricks.

Up to the present time little has been done in this country in the making of dry-press bricks, though in other countries, particularly in the United States, the best quality of facing bricks is made by this system. Where it has been tried in Britain it has not been altogether successful, but this result is due to a want of knowledge of the material best suited to this method, and ignorance of the machinery best fitted for it. Briefly stated, the method is as follows:—The clay is first thoroughly dried, preferably by being left for some time under a shed with a hot floor. It is then thoroughly ground in perforated mills, and being next elevated to the top of the building it is there sifted, the finer particles of clay being delivered by rhones down through a hopper to the press, while the coarser material is returned to the mill. The fine clay is next delivered through a charger into moulds, where by plungers with increasing degrees of force it is formed into completed bricks. It is to be noted that different qualities of the clay require different degrees of pressure.

These bricks require more careful steaming and harder burning than the bricks made by the plastic method.

Semi-Plastic System.

This system is generally applied where the material is of shaley nature. The material is ground as already described in the dry-press system, and is led from the rhones into a double-shafted mixing mill, where it is stirred up and mixed with a small quantity of water. From the mixing mill the clay is delivered into the pug-mill, and from there it is pressed into moulds in a circular revolving table, or in a cylinder, according to the class of machine. From the moulds the bricks are then delivered automatically to the press, where under considerable pressure they are finished and taken direct to the kiln. This method of brick-making is best suited for treating the refuse heaps of coal and iron-stone mines, where these are used for making bricks.

* Abstract from a paper read before the International Engineering Congress (Glasgow), 1901.

Builders' Notes.

The Scarborough Master-Builders' Association held its annual meeting recently, when Mr. Sinclair was again re-elected president for the ensuing year, Mr. T. B. Jowsey re-elected vice-president, and Mr. R. H. Carr again re-elected hon. secretary. Messrs. W. Malton and W. Tindall were elected auditors.

Fireproof Floors.—The Columbian Fireproofing Co., Ltd., of 37, King William Street, have completed their contract for fireproof floors and roof at the large building for the "Bon Marche," Brixton (Mr. J. B. Chapman, F.R.I.B.A., architect), and their estimate has just been accepted for the L.C. & M. Bank, Richmond, for the fireproof floors. This makes the twenty-second bank in which their construction has been adopted for this Corporation.

London County Council.—At last week's meeting of the Council the Main Drainage Committee recommended that the contract for the supply of 14,800 tons of lime required at the Barking outfall should be given to a Belgian tenderer. Mr. Ward said the Committee had had five years' experience of this Belgian lime, and it had proved very satisfactory. Mr. B. Cooper thought the Council's contract conditions and trade-union clauses should be enforced wherever possible. If they allowed those conditions to be evaded someone might go abroad, obtain contracts, and thus undersell the English manufacturer. Sir H. Bliss thought there was a good deal to be said on the merits of the recommendation. The Belgian lime was for their purposes of better quality than the English lime, and he could hardly see why, simply because they were paid lower wages, the Belgian labourers should be worse off than the English. After further discussion the recommendation was adopted.—The estimate of £129,226 for the widening of Fulham Palace Road, High Street, Fulham, and Church Street was approved.

VAUXHALL BRIDGE.

Severe Criticism of the New Design.

SIR WILLIAM RICHMOND and Professor Beresford Pite have both written to the "Times" protesting against the new design for a steel bridge at Vauxhall prepared by the London County Council's new engineer, Mr. Fitzmaurice. Sir William says: "It is hideous in the first place, unmeaning in the second, and will be, if erected over our river, a crying disgrace to the taste of the County Council. It is a sham! It is an imitation of stone construction; it is ornamented with Gothic design of the very worst description; it has a parapet so feeble that its design—perhaps a blessing—will not be visible 60yds. away . . . . I leave for others the pleasure of pulling this contemplated abortion to pieces, and I hope it will be treated as it deserves—discarded absolutely!"

Professor Pite says:—

In a work of the magnitude and character of this great bridge the grandeur of the simple lines of the constructive arches and piers and the rising curve of the roadway gradient have sufficient meaning to give interest to the whole structure. Mere applied ornaments in such a case are needless and wasteful superfluities. . . . Monumental statues might be placed upon the piers as affording convenient pedestals adjacent to the roadway, but the bridge as a design would gain nothing from such adornments owing to the great difference of scale involved. It will be a wise economy in the interests of art and of the public purse to reject the cost of any ornamental features on this bridge . . . .

The engineering factors of form and line in construction, simply expressed, will have a perfectly satisfactory effect, and need only to be externally emphasised by the simplest arrangement of the lines. It is, however, thought necessary to apply to the engineering design some would-be Gothic architectural forms of great vulgarity and stupid want of meaning, against which all people of intelligence and taste will incessantly protest, if carried out. Let us ask the need to imitate badly in cast-iron, upon an essentially modern steel bridge, the forms of Gothic stone tracery of the Middle Ages, and in a method unworthy of even a churchwarden of the early nineteenth century. The Council could do nothing more certainly to mark ignorance and want of taste in architectural matters than to permit the perpetration of the ornamental parts of this design. The stonework piers which support the steel arches are also terribly mauled in this same design by the Gothic spirit, and evidence gross ignorance of simple architectural design. On the whole subject it is easy to be angry and yet to feel that wrath may be useless; but an earnest appeal should be made to the London County Council to avoid the pitfalls of would-be artistic design from untrained hands, and to authorise their engineer, for whose skill as a constructor all London will be glad to cherish esteem, to seek competent and responsible architectural advice, so that an engineering success may not become an artistic abomination, a quite needless, though frequent, achievement of the last century, which, we are sanguine enough to hope, may not in the newer age or be any longer considered inevitable. In conclusion, the better and more monumental granite bridge of good design and permanent construction is what has been promised to London, proposed and authorised by Parliament; and this should certainly be carried out.

Enquiries Answered.

The services of a large staff of experts are at the disposal of readers who require information on architectural, constructional or legal matters. Questions should in all cases be addressed to the Editor. The querist's name and address must always be given, not necessarily for publication.

Fair Quantity of Waste in Floor Boards.

LEEDS.—ANXIOUS writes: "What is considered to be a fair proportion of waste per standard in laying 5½in. by 2in. floor-boards, seen both sides of joists 3ft. apart? I have about 1,800yds. to lay."

No rule can be given that will apply to special circumstances, such as those under review. In laying ordinary flooring, where the material has to be taken in random lengths, a certain proportion of waste is inevitable; but in the present instance, where the stuff will need to be specially prepared, it should not be difficult to procure it in such lengths as will work in with little or no waste. Simple arithmetic will soon decide the actual quantity required. Nett lengths will be determined by the position of the joists, whether 3ft. *apart* or 3ft. *centres*, and by the heading joints, whether square or splayed; in computing the total length of boarding required its actual width will need considering. If the flooring is prepared from 5½ by 2 scantling the finished width will probably not exceed 5¼in. It should be possible with care, and presuming that the whole 1,800yds are to be laid in one expanse, to manage the job with practically no waste whatever.

H. E.

Creosoting Wood.

NEWPORT.—PROCESS writes: "(1) How is wood creosoted? (2) What is the cost of creosoting per cubic foot? (3) Where is Haskin's process used? (4) Is this process successful against termites and toredo navalis?"

(1) You will find the process of creosoting timber described in "Rivington's Building Construction," Part 3, page 381; "Hough's Forestry," page 194; and in "Specification, No. 5" (1902), page 69. It consists of the impregnation of the wood with the oil of coal-tar known as "creosote." Details of the cost and composition of creosote are given in "Specification, No 5," page 69, and the method of applying it is there described as follows:—"The liquid may be applied (*a*) by means of a brush in exactly the same way as tar is usually employed, though I do not think creosote applied in this way is nearly so efficacious as tar; (*b*) by placing the timber to be treated into an open tank containing the creosote, and boiling the whole for several hours . . . .; (*c*) by using special machinery, by which the timber—well seasoned or artificially dried for twenty-four hours—being placed in the impregnative chamber, is first subjected to a vacuum equal to 3lbs. and 4lbs. per sq. in. for a short time, after which the creosote is forced into the timber under a pressure varying from 100lbs. to 150lbs. per sq. in., according to its size, the whole process occupying a period of from two to three hours. (2) Any large firm of timber merchants will be able to quote you a price for this work. I have found the cost for small scantlings of deal to be about 7½d. per cub. ft.; for large scantlings no doubt the cost will be greater. (3) I regret I am unable to give the information desired. (4) Of the 200 and odd processes invented with the object of the preservation of timber from the ravages of teredo and termites the process of creosoting (originally called Bethele's process, from its patentee in 1838) has been found to be the most reliable. It has been known to more than double the life of piles exposed to sea-water, but it must be confessed it is more efficacious when applied to an open-pored or soft wood rather than to a hard timber or to heart wood. On the other hand, it must not be imagined that it is a nostrum by which rubbish can be converted into good and serviceable timber.

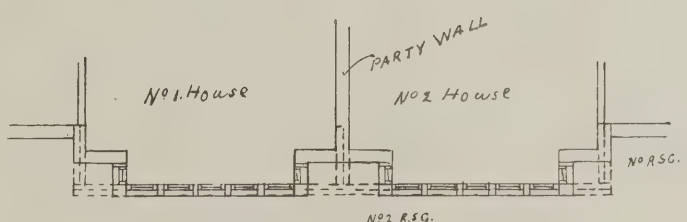
G. S. M.

Rolled Joists to Support Gabled Front.

COVENTRY.—A CONSTANT READER writes: "Referring to the accompanying illustration, it is proposed to carry a portion (from the first floor) of a 9in. gable with vertical and horizontal filling upon R.S. girders so as to bring the first floor, &c., rooms over the ground-floor rooms, as shown. What should be the least size and weight of girders used, and to what depth ought they to be built into the walls? The wood brackets will also be built into the wall, and there will be two rows of girders. The bay windows to the ground floor are to be of Bath stone.



SECTION.



PLAN.

The first-floor joists will run parallel with the party wall (it is a semi-detached pair of houses), and will therefore be supported on the girders."

The span of floor joists is not given so that the load on girders can only be approximately obtained. It will be about 20 tons for each house or 40 tons in all, but the bay windows as shown will probably be strong enough to carry the portion of weight coming over them so that the rolled joists along face need only be strong enough to carry the overhanging parts, therefore say two 4 by 3 by 12lb. R.S.J. The same size and number will do for the cantilever joists, which should go, say, 2ft. 6in. into the cross or party walls.

HENRY ADAMS.

Charges for Plans Prepared.

EDINBURGH.—C. writes: "(1) I drew out plans for stabling for a merchant in Newry, co. Down, about two months ago. He has not paid me for the work as yet, and says that the plans require some alteration on his part, and that he intends to engage me again. Have I the right to charge him for the first set before I do anything more to them? (2) Kindly give some information about a book on the plans of a building giving details and specification—in fact, illustrating a villa from start to finish."

(1) You have the right to charge for the first set of plans before proceeding, but unless you have doubts of getting your money we think you would be unwise to act so high-handedly. We advise you to send in your account at the end of the job. (2) We do not know of any book giving entire working drawings and specifications for a villa. We recommend you to get "Specification, No. 5."

Boundary Wall; Bill of Quantities; Excavation.

BINGHAM.—NOTTS writes: "(1) In a boundary wall 5ft. high and about 350ft. long, how far apart should the piers be placed, and what size should they be? How can one calculate the least thickness of wall? (2) What is the best form for an architect's bill to take for preparing plans and superintending? (3) In calculating filling and excavation for walls to be built on uneven land falling both ways, what is the usual method to adopt after levelling?"

Are these intended seriously? They are suspiciously like badly-set examination questions or the foolish problems which some students are fond of discussing, and unlike genuine difficulties which have been met with in practice upon the solution of which our aid is sought. No architect in his senses would think of calculating such a boundary wall as that mentioned in the first question; nor could it be calculated without data as to the probable maximum wind-pressure, the material of which the wall is to be built and the mortar to be used. In an ordinarily sheltered position in a town, such a wall might be safely built of 9in. brickwork in good mortar with 14in. wide buttresses

projecting 2¼in. on each side, placed at 10ft. apart—if well bonded; but the writer has seen a wall of similar dimensions blown completely over, when bricks, mortar and bond were all bad. With regard to the second question, unfortunately the art of preparing an account is not generally considered to be of the importance that it really is. If proper double-entry books have been kept, however, the matter presents little difficulty, as all chargeable items will be found in the ledger account under the client's name, with their correct dates, and only want copying, and possibly amplifying in description, to form such an account as is issued by any tradesman or merchant, the only difference in such a case being that the heading is written and not printed, and that surveyor's bill-paper is used. So far as the third question is concerned, it would be best to consult some good book upon quantity surveying. The amount of excavation for the foundations of walls can generally be found with sufficient accuracy by cubing, considering a longitudinal section along the centre line of the wall to give the length and average depth of the cutting, and taking its width as uniform. Earthwork calculations on a larger scale are, however, exceedingly complicated, cross-sections as well as longitudinal sections being needed, and the cubical contents being arrived at by taking out the dimensions in short lengths, considering each cross-section as the average over a distance calculated from midway between that and the previous cross-section to midway between that and the next. G. A. T. M.

Portable Buildings.

LAMPETER.—E. C. D. writes: "Kindly give some information about portable buildings made up of interchangeable sections."

Apply to the Portable Building Co., Ltd., of Fleetwood and Manchester.

VENTILATION OF FACTORIES AND WORKSHOPS.

GOVERNMENT BLUE-BOOK.

IN July, 1900, Dr. John Scott Haldane, F.R.S., and Mr. E. H. Osborn, Engineering Adviser to the Chief Inspector of Factories, were appointed to enquire into and report upon (*a*) the means of ventilation in factories and workshops, with special reference to the use of fans; (*b*) the use and construction of respirators for the protection of workpeople exposed to dust or dangerous fumes.

They have just issued their first report (published as a Blue-book, price 1s 8d.), in which they state:—

It is evident that the air breathed by the employees in a factory or workshop can be kept pure in two ways: (1) by constantly renewing from outside the whole of the air of the room in which work is carried on; (2) by removing impurities locally, or otherwise preventing them from ever mixing with the air breathed. The former process may be distinguished as general and the latter as local ventilation. As a general rule dust and fumes can best be dealt with by local ventilation or other means, whereas impurities due to the presence of employees and of lights burning must be got rid of by general ventilation. In the present report we propose to deal only with general ventilation, which is necessary in all cases, whether local ventilation may also be required or not. In a further report we hope to refer to local ventilation and other means of preventing injury to health by dust and fumes. . . .

By section 7 of the Factory and Workshop Act, 1901, it is enacted that . . . . "the Secretary of State may, by special order, prescribe a standard of sufficient ventilation for any class of factories or workshops, and that standard shall be observed in all factories or workshops of that class . . . ."

By the effects of the air upon the senses one can roughly judge as to whether a room is sufficiently ventilated according to one's own subjective standard; but the judgments of different persons agree only very roughly, and are liable to be affected by various incidental circumstances. It is therefore desirable to have an objective criterion of what constitutes reasonably "sufficient" ventilation.

Except in cases where artificial ventilation by fans is employed, it is seldom practicable to measure directly with an anemometer the amount of air supplied per person in a building; and the only practical objective criterion hitherto legally recognised in general administration in connection with all factories and workshops is the existence of a certain minimum (250 cub. ft.) of air-space per person employed. But this affords no reliable guarantee of reasonably sufficient ventilation, and, indeed, the most highly vitiated air met with by the Committee was in rooms with an air-space of about 10,000 cub. ft. per person, or forty times the legal minimum.

It has long been recognised that the best objective criterion of the sufficiency of ventilation in ordinary rooms is the proportion of carbonic acid in the air; and one of the chief points to occupy our attention was the question whether it is practicable to make use of this proportion as a legal standard of sufficient ventilation. The objection to such a standard appeared to be that the analysis of the air, if carried out with sufficient accuracy, was a troublesome and therefore expensive process . . . .

With a view to meeting these difficulties a method . . . . was devised by one of us by which the analysis can be done on the spot in less than five minutes if the apparatus, which is easily carried about, is brought to the room requiring examination; or the sample required can be collected in a very small bottle such as can be carried without inconvenience, and the analysis made at leisure . . . .

Standards have been laid down by various authorities as to the proportion of carbonic acid which ought not to be exceeded in the air of rooms . . . . From our own observations we have come to the conclusion that it is reasonable to expect that under ordinary circumstances ten volumes should not be exceeded in factories or workshops unless gas is burning . . . .

We are of opinion that it would materially assist towards efficiency in the ventilation of factories and workshops generally if a maximum limit of carbonic acid allowable in the air during both daylight and gaslight were fixed in virtue of the power conferred on the Secretary of State by the Factory Act of 1901. We have found that as a general rule employers, and particularly the larger ones, are willing and anxious to do all that is within their power to secure efficient ventilation of their factories and workshops, and that frequently the result of their efforts is admirable. Where failure occurs this often depends on thoughtless objections on the part of a small minority of the employees. We believe that the laying down of a legal standard would lead to such objections being overcome and to much more attention being given to the proper utilisation of existing means of ventilation. We also believe that it would have a good effect in preventing much wasteful expenditure on inefficient ventilators, &c., as it would supply a ready test of efficiency. While it would act as a means of putting pressure on backward or negligent employers, it would serve to protect from unjust criticisms those who have done what can reasonably be expected. . . .

We are of opinion that heating arrangements capable of maintaining in case of necessity a temperature at least 25 degs. Fahr. above that of the outside air, in the absence of lights and employees but along with adequate ventilation, should be provided in all factories and workshops where the occupation is sedentary or involves little muscular exertion, and should be regularly used in the colder weather. In such occupations the temperature should not be less than about 60 degs. Fahr., particularly where the work involves delicate manipulations with the hands.

Recommendations.

After very careful consideration, we des re to make the following recommendations:—

(1) That in exercise of the powers conferred on the Secretary of State by section 7 of the Factory Act of 1901 such a standard of ventilation should be prescribed for all classes of factories and workshops not otherwise specially dealt with, that the proportion of carbonic acid in the air at about the breathing level and away from the immediate influence of any special source of contamination, such as a person or light, shall not (except on very foggy days, when no tests should be made, on account of the vitiated state of the outside air) rise during daylight, or after dark when only electric light is used, beyond twelve volumes of carbonic acid per 10,000 of air, and that when gas or oil is used for lighting the proportion shall not exceed twenty volumes after dark or before the first hour after daylight; the only exception to this rule to be in cases where the extra carbonic acid is produced in other ways than by respiration or combustion, as in breweries, &c.

(2) That in the case of cotton-cloth factories with artificially humidified air the occupier should have the option of coming under the regulation just mentioned, instead of remaining under the existing regulation.

(3) That Inspectors of Factories should inform employers of the results of any official analyses of the air in their factories or workshops, should give notice that the ventilation is deficient to any employer in whose factory or workshop the above proportions have been found to be exceeded, and at the same time supply, so far as practicable, information as to the nature of any defect noticed, and that legal proceedings should not be taken against an employer unless after a reasonable interval following such notice the stated proportion is found, on an average of two or more samples taken in different parts of the room, to be again exceeded by one volume or more, and he is unable to show that he has taken measures reasonably calculated to secure the requisite ventilation.

(4) That arrangements be made by the Factory Department of the Home Office for the analysis by a specially qualified person or persons of samples of air collected by inspectors, and that any analysis on which a prosecution immediately depends shall have been performed by such qualified person or persons.

(5) That arrangements be made for Inspectors of Factories to have the use when desired, of a properly tested portable apparatus for estimating on the spot the proportion of carbonic acid in air.

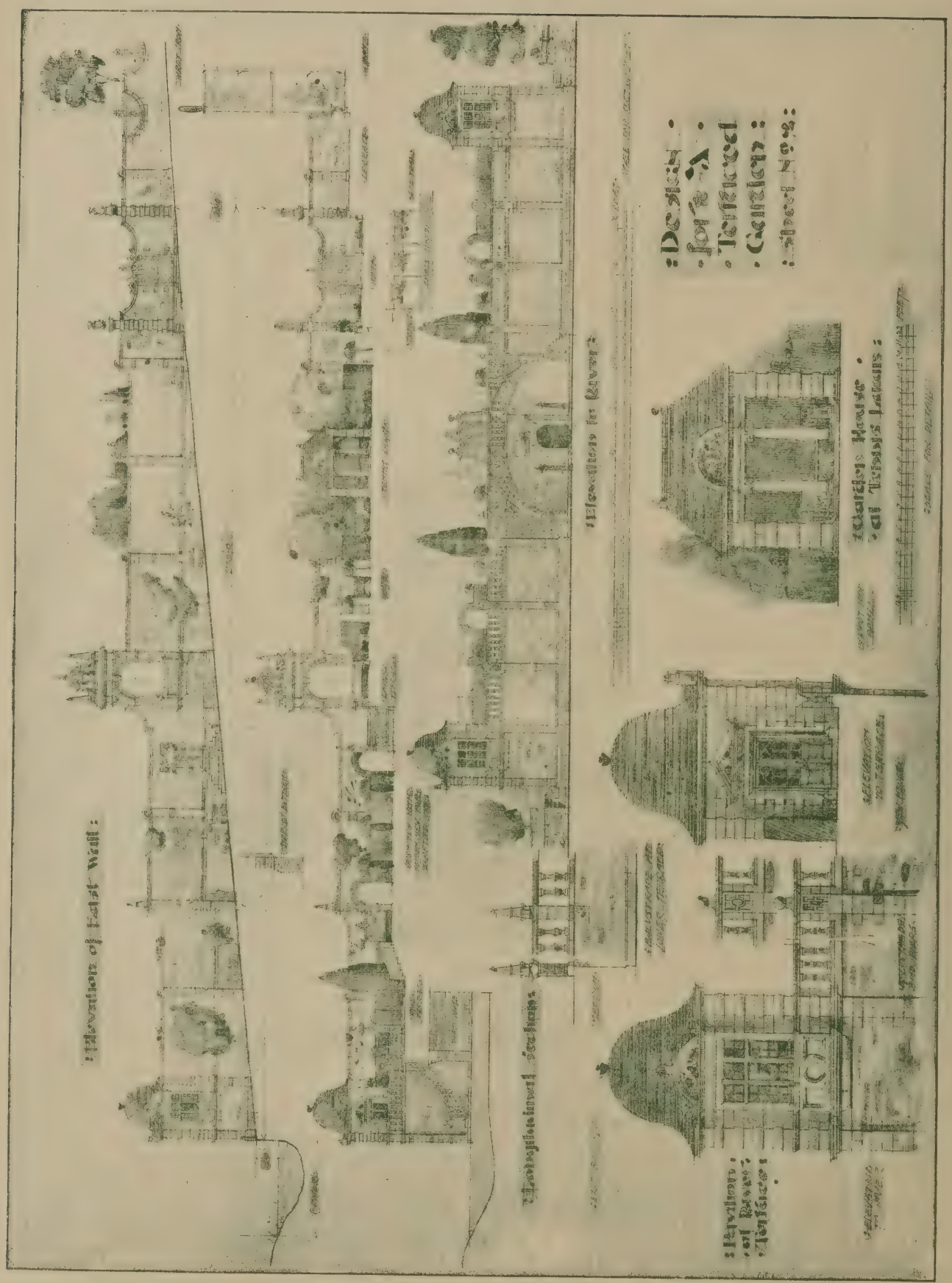
Ordinary Dust from Floors, &c.

In an appendix the Committee state:—

The air of all factories and workshops whether or not the process is a dusty one, is necessarily contaminated to some extent with light dust from the floors, &c., the amount depending on the cleanliness of the room. This dust originates partly from the clothes and persons of those who are or have been present in the room and is thus liable to contain infective micro-organisms. Some idea of the manner in which such organic dust accumulates in a room may be formed from determinations of the numbers of bacteria of all kinds present in the air; and the following average results may be quoted

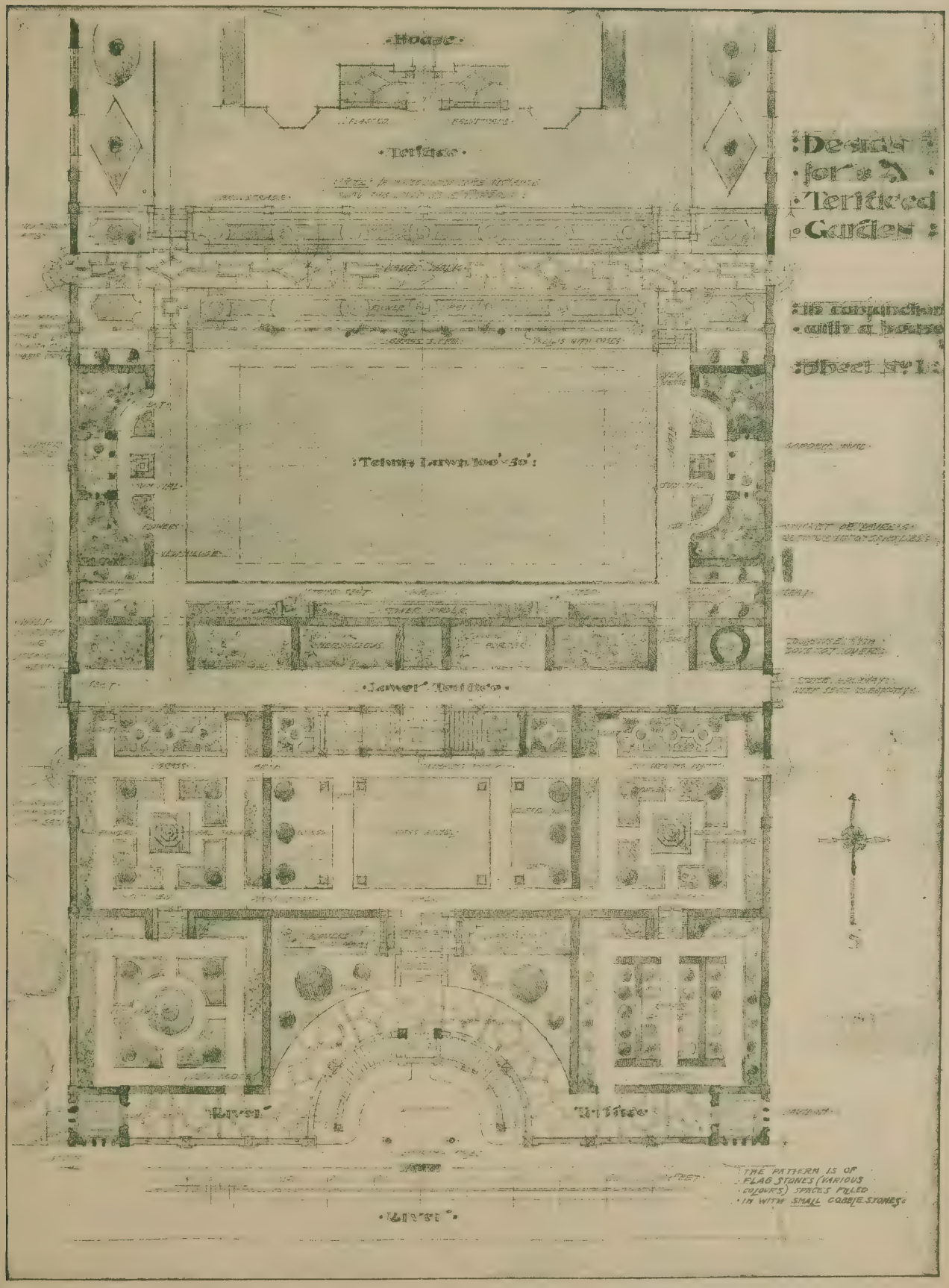
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SOUTH FRONT, OVERLOOKING FLOWER GARDEN AND LAWN.



VIEW INSIDE COURTYARD, LOOKING TOWARDS STABLE AND COACH-HOUSE.



VIEW INSIDE COURTYARD, LOOKING SOUTH.

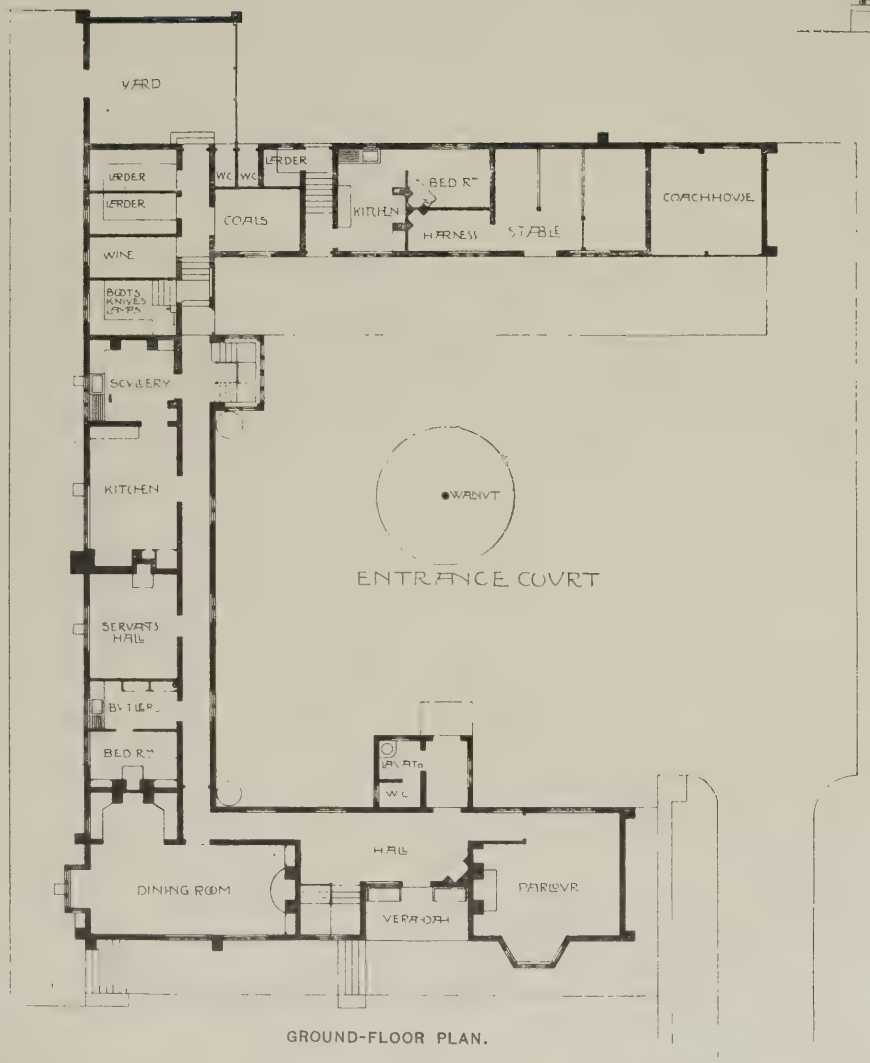


NORTH SIDE OF STABLES, COACH-HOUSE, &c.

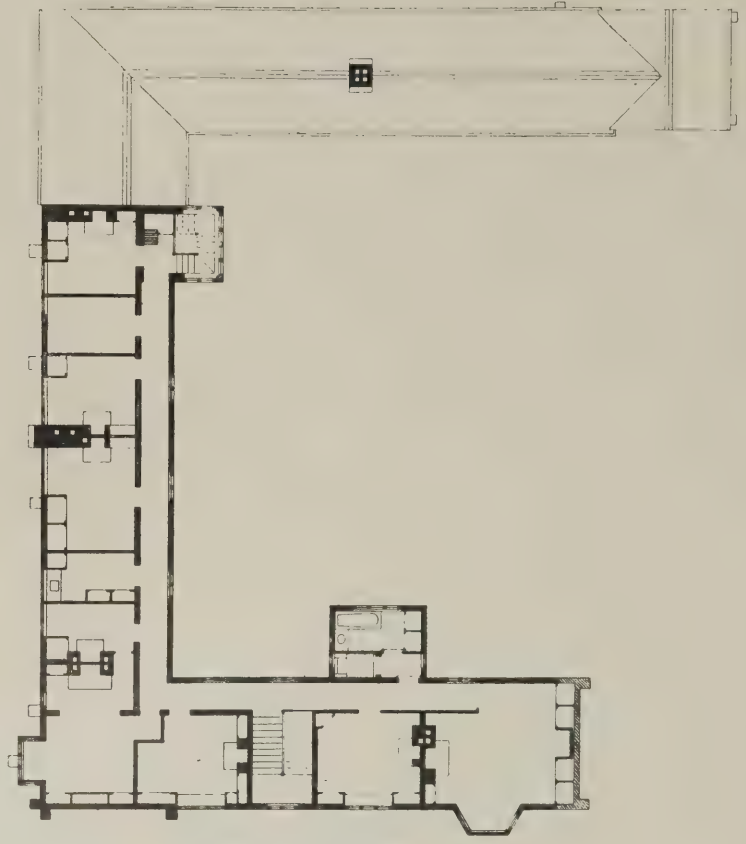




VIEW INSIDE COURTYARD, LOOKING WEST.



GROUND-FLOOR PLAN.



FIRST-FLOOR PLAN.

"THE PASTURES," NORTH LUFFENHAM, RUTLAND. C. F. A. VOYSEY, ARCHITECT.

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here in illustration [the outside air (winter) contained an average of 0·8 micro-organisms per litre]:—

		Micro-organisms per litre of air.
Elementary schools in Dundee with natural ventilation	Cleaner	91
	Average	125
	Dirtier	193
Elementary schools in Dundee with natural ventilation	Opened over twenty years	311
	Opened two to twenty years	150
	Opened less than two years	38
One-roomed dwellings in Dublin	Cleaner	18
	Average	45
	Dirtier	93
Two roomed dwellings in Dundee	Cleaner	10
	Average	22
	Dirtier	69

A number of determinations of bacteria in workrooms were made by the Committee. It soon, however, became evident that the results were so much influenced by the nature of the dust peculiar to the work that they were of limited value. Very little significance can be attached to the presence of even large numbers of bacteria in the air if these bacteria are derived from material which is not likely to contain germs of disease. But of particular importance is the prevention of expectoration on the floors.

Natural Ventilation Without Special Openings.

In all rooms a certain amount of exchange of air occurs through the walls, roof, floor and various chinks, as was originally proved by Pettenkofer. He showed experimentally that when all visible chinks were closed in a room investigated by him the rate of ventilation was only diminished by 28 per cent., as compared with the rate when the windows and door were only closed in the ordinary way. How free the passage of air may be is shown by the fact that even in a small room there is still a brisk draught up the chimney after the door and windows are tightly closed. Thus in a room of 1,400 cub. ft. used for some of the experiments described below the chimney draught was 4,450 cub. ft. per hour, so that this amount of air was entering through the walls, &c.

As it was important to obtain some general ideas as to the amount of air which may pass through a room unprovided with special openings for ventilation, a number of experiments on this point were made by one of the Committee.

The details of these experiments cannot now be given, but taken as a whole they indicate that in small rooms, provided there is an open chimney, no gas burning, and an air-space of not less than 1,000 cub. ft. per person, the ventilation may often be fairly sufficient without open windows or other special means of ventilation. With a good coal fire burning in the grate the ventilation is likely to be fair, even with only 400 cub. ft. of air-space per person. The larger the size of the room, however, the greater becomes the need of special openings for ventilation; and in rooms of over 5,000 cub. ft. open windows or special ventilators are nearly always necessary unless the air-space per person is very large or the roof is very permeable to air. In large and crowded rooms it is very difficult to provide adequate ventilation at all times except by the use of fans; but observations show that excellent results can be attained without mechanical ventilation even in a very large room if there is no crowding and the manufacture is not affected by external variations of atmosphere.

The difficulty in ventilating crowded rooms, if fairly large, without fans is well illustrated by the notoriously bad ventilation of elementary schools. The average proportion of carbonic acid in elementary schools without fan-ventilation was found to be 18·6 during the winter months, with an average of 186 cub. ft. of air-space per child and 15,450 cub. ft. per room.

Natural Ventilation through Special Openings.

The Committee continue:—Where special openings for ventilation of workshops and factories are used, these are in the great majority of cases open windows. As a general rule this seems to be the most practical arrangement in ordinary buildings. Where permanent openings such as ventilation shafts are also provided we have frequently observed that these are either totally insufficient in number or size, or have been blocked up in cold or windy weather, and left in this condition. It is evident that where windows are used for natural ventilation they require constant regulation, as their action is entirely dependent on the varying influence of wind and differences of temperature between inside and outside. . . .

Where open windows are used as outlets it not infrequently happens that a staircase, or the shaft of a lift, is the principal inlet. If the air thus entering has been more or less warmed by passing through a basement or ground floor which is heated in winter this arrangement is successful; but often enough, as already pointed out, the foul air from one flat is allowed to pass up into the next, so that the incoming air for the higher flat is far too impure. . . .

In very wide rooms, sheds, &c., ventilation is usually carried out by means of special ventilators or shafts in the roof, often supplemented by Tobin tubes or other inlet openings. Where ventilation is mainly dependent on this plan it is essential that the openings should be sufficient in number and cross-section to perform their work even on still and warm days.

Roughly speaking, a greater velocity than about 200ft. per minute up a ventilating shaft cannot usually be counted on, even with free entrance of air to the room. A cylindrical shaft 1ft. in diameter has an area of nearly ·8 cub. ft., and will therefore carry off about 200 by 60 by ·8 = 9,600 cub. ft. of air per hour. Hence, to give a ventilation of about 2,000 cub. ft. per person per hour, one such outlet ventilator would be needed for every five persons, or 1 sq. ft. of free outlet shaft for every six persons, together with corresponding inlet provision. We have observed that the provision of ventilating shafts is frequently quite insufficient. Often, too, the shafts are so obstructed by various elaborate contrivances above or in the course of the shaft that they are of very little use except in windy weather, when they are least needed, as natural ventilation by other means is then at its maximum. It is unfortunate that ventilation is frequently regarded from a qualitative rather than a quantitative aspect. Arrangements which are well designed with a view to prevention of draughts in cold weather or to utilising the effects of wind are often quite insufficient to give the necessary quantity of air in warm or still weather, so that unless windows are freely opened the ventilation may be very bad. If the ventilators are designed so as only to give sufficient air in cold or windy weather they will not give nearly enough in still weather; and if they give enough in still and warm weather they will usually cause draughts in cold and windy weather unless they are partially closed.

The truth is that natural ventilation, whether by means of shafts, &c., or by open windows, needs constant regulation and attention; and in factories and workshops employers should make such arrangements that not only are sufficient means of ventilation provided for all weathers, but that some one person is definitely responsible for their regulation in each room. . . .

The more crowded a room is the less easy does it become to secure adequate supply and distribution of air without the use of fans. A great deal will, however, depend on the adequacy of the heating arrangements, the situation of the windows or other openings, and the possibilities of using them for ventilation without causing intolerable draughts. In cases where, after due notice of inadequate ventilation has been given, the air is not kept within the proposed limits of purity, we are very decidedly of opinion that the employer can be fairly called upon to provide adequate mechanical or other ventilation, with the inlets and outlets so arranged as to avoid draught, or else to reduce the number of persons employed in the room.

Ventilation by Fans.

Ventilation by fans has the great advantages that (1) practically unlimited quantities of air can be supplied; (2) the supply is completely under control, so that it can always be relied on; (3) the incoming air can be warmed, moistened or filtered from soot; (4) dust and fumes can be removed at or near the points where they are given off. These advantages are so great, as compared with the cost involved, that where engine power or electricity is available mechanical ventilation is now very largely used in factory ventilation, even in rooms which are not crowded.

A fan may be placed in either an inlet or an outlet for air, the best arrangement for any particular case depending on circumstances. If it is necessary to warm, filter or moisten the incoming air, the fan should, as a rule, be in an inlet, so that no untreated air can enter the room. On the other hand, if the incoming air has not to be treated the most convenient position is usually in an outlet placed high up. The incoming air then enters through the walls, roof and various openings. The incoming air-currents should be so directed and subdivided as to secure proper distribution of air and reduce draught to a minimum. In rooms of great superficial area several fans are needed to secure proper distribution; and often a combination of inlet and outlet fans is advantageous. Where a fan is used for the removal of dust, steam or fumes which are escaping into the air, and cannot be dealt with at their point of origin, the fan should be placed so as to draw off the vitiated air as directly as possible, and particularly not to draw it across the room. Mistakes as to this point are not infrequent. Proper heating arrangements must of course be combined with fan ventilation, whether or not the incoming air is heated. . . .

With a propeller fan only about 40 per cent. of the energy communicated to the air, or less, is expended in driving it in the required direction parallel to the axis of the fan.* Even so, however, the volume of air which can be propelled with a trifling expenditure of power is enormous. The number of foot-pounds (F.P.) of work communicated to the air per second in driving it forwards is $\frac{WV^2}{2g}$, where

W = weight in lbs. of air moved per second,
V = velocity of air-current forwards in ft. per second,
g = acceleration due to gravity in ft. per second;

but 1 cub. ft. of air weighs about ·078lbs., and g = 32·2; hence, if Vol. = volume of air moved in cub. ft. per second, the formula becomes—

$$\text{F.P.} = \frac{\text{Vol.} \times \cdot 078 \times V^2}{64 \cdot 4} = \text{Vol.} \times V^2 \times \cdot 00121.$$

Hence, if the opening of the fan is 2ft. in diameter, or 3·14 sq. ft. in area, and the

* With a simple three-bladed fan, 2ft. in diameter and revolving 630 times per minute, Mr. W. G. Walker found that with the best arrangement of blades 42·8 per cent. of the energy communicated to the air by the fan was expended in driving it forwards. The fan was delivering 2,420ft. of air per minute, and the horse-power communicated to the air was ·0334.—(Proc. Inst. of Mechan. Engineers, Nov 1897.)

volume of air delivered is 40 cub. ft. per second, or 144,000ft. per hour, so that the velocity through the opening is $\frac{40}{3{\cdot}14}$, or 12·7ft. per second, the foot-pounds per second of work expended in driving forward the air will be $40 \times 12{\cdot}7^2 \times {\cdot}00121 = 7{\cdot}8$. This is equivalent to 468 foot-pounds per minute, or $\frac{468}{33{,}000} = 0{\cdot}0142$ horse-power. Assuming that about 20 per cent. of the energy communicated from the driving belt to the fan is utilised in driving forward the air, the horse-power required to drive the fan will be only 0·07.

The volume of air moved by a fan varies directly as its rate of revolution, and the work done on the air varies as the square of the velocity of the air-current, so that the work done by the fan varies as the cube of its rate of revolution. It is thus an economy of power, as well as of wear and tear, to employ a fan of sufficient size not to require a very high rate of speed. . . .

Where a propeller fan or duct leading outwards from it opens on the south side of a building exposed to wind the pressure of the wind may easily cause so much air to blow backwards through the centre of the fan that the current is for the time completely reversed. . . . The passage of air backwards through the centre of a propeller fan can be remedied without increasing the speed by blocking the central part, which is of little use under any circumstances. The fan will then work efficiently against a much greater adverse pressure. . . .

As a general rule a duct or its combined branches ought to have a cross-sectional area equal to or somewhat greater than that of the fan opening; and where, as often occurs, it is necessary to restrict the size of the ducts and use rapid air-currents, a form of fan with correspondingly restricted opening and working efficiently against correspondingly increased pressure should be employed. An ordinary open propeller fan is useless in such a case, and a centrifugal fan is best.

For the purposes of general ventilation, however, it is evidently preferable to employ fans and ducts with wide openings, and to run the fan at the lowest velocity which will secure under all conditions a sufficient air-current. It should also be borne in mind that at every point which the air has to pass at an increased velocity due to narrowing or obstruction of the duct there is great increase of the work required to move the air, since the work increases as the square of the velocity. If a propeller fan 2ft. in diameter, or 3·14 sq. ft. in area, is drawing its air supply through a duct narrowed at one point to 1 sq. ft. in area, the output of the fan, when running at a given velocity, has been found to be reduced to about a third of what it would otherwise be.

A rectangular bend in a duct has been found to produce a resistance equivalent to that caused by an increase of nearly 50 per cent. in the velocity, or 100 per cent. in the pressure needed merely to set the air in motion at the same velocity. Sharp bends should therefore be avoided wherever possible. The loss at a bend is greatly diminished by making it gradual. There is also a loss at the entrance of a duct equivalent to that caused by an increase of nearly a third in the velocity, unless the opening is trumpet-shaped.

Frictional resistance of the duct walls must also be taken into account. Its amount is proportional to the total internal surface of the duct, but inversely proportional to the sectional area. It follows that the duct should, so far as possible, be of such a shape as to present a minimum of internal surface with a maximum of sectional area, and that it is disadvantageous to subdivide an air-current between several ducts. . . .

Law Cases.

"Appurtenances" to a Villa. — The case of *Webster* v. *Brewis* was recently heard in the Chancery Division of the High Court of Justice. The predecessor in title of the defendant, Thomas Brewis, purchased in 1892 a plot of land forming part of a building estate at Enfield, and covenanted that he, his heirs and assigns would not erect on the land any buildings other than one or two detached villa residences "with the appurtenances thereto" of a certain value. In June, 1901, the plot of land, with the dwelling-house, stables and coach-house which had been erected on it, was conveyed to the defendant. In February, 1900, the plaintiff had purchased an adjoining plot of land on the same estate and erected a dwelling-house on it. The defendant recently pulled down a portion of the fence separating his piece of land from that of the plaintiff, and erected a building 30ft. in length and about 20ft. high. The plaintiff alleged that such building was not an appurtenance of the defendant's dwelling-house and was a breach of his covenant, and that it caused her serious injury and annoyance as owner of the adjoining house by obstructing the access of light and air to certain of her windows, from which it is only 8ft distant, and by interfering with the prospect from the windows. She contended that a lower building would have sufficed for the purpose—bicycles, firewood, &c.—Mr. Justice Farwell held that the purposes for which the building was used were reasonable for the purposes of a villa of the character of the defendant's, and that the defendant was entitled to erect such a building without regard to the convenience of his neighbour, who could not dictate to him the height to which, or the position in which, it ought to be built. The action was misconceived, and must be dismissed with costs.

A Case concerning Sir Rowand Anderson. —In the Scottish Court of Sessions (Outer House) Lord Low was recently informed that a settlement had been arrived at in the action by George Mackie Watson (formerly George Watson), architect, Edinburgh, against Sir Robert Rowand Anderson, LL.D., architect, Edinburgh. The defendant is senior partner of the firm of Anderson, Simon & Crawford, architects, 16, Rutland Square, Edinburgh. The plaintiff, who was in his employment for twenty-three years, from 1876 to April, 1899, averred that by agreement between him and the defendant, he, while in the defendant's employment, was allowed on a large number of the defendant's commissions a fee at first of 5 and afterwards of 10 per cent. on the defendant's profit from these commissions. The plaintiff was also entitled to accept employment from his own clients and to have the use of the defendant's office and staff for such work. In consideration of these facilities the defendant was entitled to two-thirds of the plaintiff's fees, and this arrangement was acted on down to the time the plaintiff left. At that time the plaintiff averred the defendant had in hand many commissions which were subject to the agreement, and in the event of the defendant failing to count and reckon with him for these he sued for a sum of £500. The defendant stated that he had given the plaintiff every opportunity of examining his books, but the latter had made no attempt to do so. Owing to the plaintiff having refused to disclose the amount of fees he had received, or to examine and make up accounts from the defendant's books, the defendant averred that he was unable to ascertain on which side the balance lay, but he believed and averred that the sum due to him in the plaintiff's hands was greater than the amount he owed the plaintiff. If after examination of the books was made it was found that he had received too much from the plaintiff he offered to pay the balance. The case was taken out of Court in terms of a joint minute.

Sewer Trenches in Streets.—The case of *Bull* v. *Mayor, &c., of Shoreditch* was heard in the Court of Appeal on Wednesday last. This was an appeal by the plaintiff from a verdict and judgment entered for the defendants when the case was tried for the second time before Mr. Justice Phillimore and a common jury. The action was brought to recover damages for personal injuries sustained by the plaintiff, who was being driven in a hansom cab between ten and eleven o'clock on the night in question along a road within the defendants' district. The defendants had been putting down the new sewer, and a trench had been filled in and the barriers removed five or six days previously. There had been rain that evening, and the new soil had sunk, and the cabman pulled over to the wrong side of the road hoping to find better going there. To fill the trench and to replace the gravel that had been dug out and sold when the trench was made the defendants, in their capacity of sewer authority, had permitted rubbish to be shot into the trench. A load was brought for this purpose after the trench was filled, and instead of taking it away the carter, who was not the defendants' servant, shot it on the side of the road. Over this heap the cab passed, with the result that the plaintiff and his companion were thrown out. —The Master of the Rolls said he thought the defendants had been guilty of misfeasance, and therefore the plaintiff was entitled to judgment. The Lords Justices concurred. Judgment accordingly, with costs.

Public Urinals: Injunction against a Council.—The case of *Leyman* v. *The Hessle Urban District Council* was heard last Thursday in the Chancery Division of the High Court of Justice. The plaintiff complained that in August, 1901, the defendants had erected a public urinal on the road leading from Hessle to Hull within 12ft. of the entrance gates to his house. This proved a nuisance, and he accordingly claimed a mandatory injunction against the defendants to compel them to remove it. The defendants denied that it was a nuisance, and stated that they had erected it under the provisions of section 39 of the Public Health Act, 1875, as being "proper and convenient."—Mr. Justice Joyce, in giving judgment, said that the urinal, by reason of its position and construction, must be a serious annoyance to the plaintiff and those inhabiting his house. The test was whether there was a material interference with the ordinary comfort and convenience of the plaintiff in the enjoyment of his property. His Lordship thought there was. It was said that private interests must give way to the public good. Where was that in the statute? There was no legal necessity for the defendants to put the urinal in this road at all. If they could not put it anywhere without creating a nuisance then they could not do it at all. There would be a mandatory injunction against them to remove the urinal within six weeks.

Ventilation of the Court of Appeal.—On Friday last Lord Justice Vaughan Williams stated that he had received complaints of the excessive draught caused by the opening of the windows of the Court. He understood that formerly cold air was admitted into the Court by a pipe in the floor, but that the use of it was discontinued as it injected more dust than air. Lord Robert Cecil, K.C., said that in the Parliamentary Committee Rooms, which were small and often crowded to excess, most successful and thoroughly-efficient ventilation had been secured by an electric fan high up in one of the windows and a Tobin ventilator below.

ARCHITECTURAL ASSOCIATION.

Open-Air Sanatoria for Consumptives.

A MEETING of the Architectural Association was held on Friday last. Mr. Henry T. Hare presided. The following were elected members:—Messrs. L. L. Jeeves, C. D. Power, G. R. Bryce, H. Rigg, B. G. Gwyther, John Swarbrick, G. A. Soames and A. C. Bossom.

Mr. C. C. Brewer then read his paper on "Sanatoria," of which the following is a brief summary:—

Existing sanatoria as to their plans may roughly be divided into two classes: firstly, those built on a concentrated plan; and, secondly, those on the cottage, or block system; that is to say, they vary from the large hotel-like buildings, such as Falkenstein and Hohenhonnef, in Germany, both having five floors, to Nordrach and the American Cottage Sanatoria, with quite small blocks, having two floors at most. Nordrach, perhaps the most successful of all these sanatoria, is on the cottage plan, and there can be no doubt that, from a purely medical point of view, this plan is best; but the disadvantages in working are many and obvious both as regards convenience and economy.

The medical requirements are extremely simple. Every part of the building must be (i) well ventilated; (ii) free from dust and easily cleansed; (iii) patients' rooms, in addition to abundant fresh air, must have as much sunlight as possible, and must be protected from cold winds; (iv) the building must be as sound-proof as practicable. The perfect sanatorium, therefore, will be the one that fulfils these requirements, and at the same time is convenient of management and supervision, provides reasonable comfort for patients in all weathers, and has not too much the appearance of a hospital or barrack, but which must not, on the other hand, degenerate into the hotel or hydropathic establishment.

After showing on the screens plans of several German buildings, and criticising them, Mr. Brewer showed the plan of the small English sanatorium built for the East Anglian Sanatorium Co. at Nayland, Suffolk, of which Dr. Walker is the medical director.

This building was originally intended for twenty-eight paying patients, but seven more rooms were fitted up in the roof during construction.

Slightly Radiating Wings

were adopted, and the angle which these make with the centre has been found to be about right, that is to say, they afford a certain amount of shelter without shutting off the sidelight from the centre. Each wing contains six ordinary patients' bedrooms (10ft. by 14ft. by 8ft. 6in.) on each floor, and larger bay rooms at each end, those next the open-air galleries being given up to staff officers' rooms so that control is always kept over patients in the galleries and also over the corridors. Practically the whole width of the south wall is window from 2ft. 6in. sill-level to the ceilings. A corresponding light is put in right across the north wall of the room above 6ft. high, and again in the corridor opposite, so that a complete blow through can be obtained.

The sanitary blocks are placed centrally behind the patients' blocks, and a nurses' room at each end close to the secondary staircases. The administration block is at right angles to the main block, with a passage through to the dining-room which is an almost detached room. The small passage connecting the administration block, with the dining-room was originally planned as an open verandah, but glass screens had to be fitted which in really fine and settled weather can be removed.

Stretching eastwards from the dining-room come the kitchen and offices, with extra larders and stores in a basement under the east end of the block. Here an open corridor is provided, but there is a passage-way through kitchen and pantry which can be used in windy weather. There is no first floor over the dining-room and kitchen block. On the first floor over the administrative block is a pathological room, and sewing and linen rooms. The front portion of the first floor is similar to the ground floor. On the top floor on the east side are patients' room and on the west nurses' and servants' rooms. Owing to the slope of the ground the administrative blocks are midway between the ground- and first-floor patients' room, so that patients on either floor have only to go up or down one flight of steps to reach the dining-room.

The Planning of Small Sanatoria

is extremely simple. Difficulties undoubtedly increase enormously directly the members to be accommodated increase. You are then at once confronted with the question of area covered, and distance from dining-room and kitchen, and the number of floors allowable. As it is exceedingly important that patients should dine in the general dining-room as often as possible, this question of the distance of the patients' rooms from the dining-room is really a vital one. It has sometimes been suggested that the buildings should be built on a great number of floors, and lifts provided. Against this there are two objections (1) the fear that the lower rooms might ventilate into the upper; (2) the expense of running the lifts, which would have to be very large, as they would be chiefly used in going to and from meals, and therefore by practically the whole of the patients at once.

In this climate verandahs outside the bedrooms are generally considered a mistake. The open-air galleries should be placed either in between the rooms (I have sometimes wondered whether the ideal plan would not be to have one between every alternate room) or at the ends of corridor or quite away from the house. They should not be less than 10ft. deep, and there should be ample space laterally, say 8ft. to each person.

Ventilation.

In some German and, I believe, some American sanatoria mechanical ventilation is resorted to. But this seems a great mistake—one of the objects of the treatment is the hardening of the patients, and for this there can be nothing better than open windows. Casements opening in have been found the best form of window. Sashes only allow of half the window-space being used for ventilation, and casements opening out are most troublesome and noisy in windy weather. The upper parts of the windows should be hopper hung or on centres, and it is a good plan to have lift butt hinges to the casements so that they may be taken right away in hot weather. Open fireplaces, except for appearance in sitting-rooms, are not advisable on account of the dust, and low-pressure steam is generally admitted to be the best form of heating. Hot water would, of course, be preferable were it not that in sanatoria the temperature of rooms may fall below freezing, and there is a danger of burst pipes; and as the radiators are chiefly used for a short time while patients are dressing, hot water will not heat them rapidly enough. Besides, with very long, low buildings such as I have been advocating, hot water cannot be efficiently used. The best position for the radiator in patients' rooms is another point, I think, to be settled.

The radiators should be fixed at some little distance from the wall to allow of dusting behind, and should be of such a pattern that a brush can be used between tubes.

The doors of patients' rooms and open-air galleries should be made large enough to allow of beds being wheeled in and out with ease.

The Flooring

of patients' rooms and corridors is a question to which a great deal of attention has been given—smooth, plain linoleum is probably the best for both. Tiles, parquet or mosaic are excellent, except on account of noise, and this is of the very greatest importance. Sanatoria with long lengths of corridor and a number of rooms having both doors and windows sprung on to them are apt to be so noisy as to have a really bad effect on nervous patients; and everything in the way of rubber doorsteps, silent window-fastenings, and noiseless floor-coverings must be adopted. Probably the india-rubber flooring now used in banks, &c., would be the best if expense allowed. The floors of the dining-room may very well be of hardwood and of the open-air galleries unglazed tiles.

Fixed hanging cupboards running up to the ceiling are better than wardrobes, as dust underneath, behind, and on the tops of the latter is avoided.

Electric light is, of course, the best form of illuminant, and its advantages are so great that it should be installed almost at any cost. It is necessary to have the fittings arranged so that the lamps shall not swing and be broken by the draughts that blow through the rooms, and, of course, to have the switches in patients' rooms within reach of the bed. It is also well to have at the same point an extra plug, which may be used for keeping plates warm or for a lamp for examining throats. Here also should be fixed the push of the bell to ring in the nurses' duty-room by day and bedroom by night.

As to the Height of Rooms,

8ft. 6in. or 9ft. at most has been found a good and convenient height. In Continental sanatoria rooms vary from 12ft. to 14ft. The advantages of low rooms are (1) the reduction in the height of the building, consequently in the number of stairs; (2) the reduction in the cube, and consequently the cost of the building; (3) the convenience of cleaning, the top corners being easily reached with an ordinary mop; (4) the ease of opening the top lights of windows. But, of course, with such low rooms the windows must be tight up to the ceiling. To recapitulate the chief points to remember in designing the ideal room of a consumptive patient:—The room should face south or south-east; should be ventilated back and front, as should be the corridor behind. The windows should be the full width of the room, and the sill low enough for the patient to see out when lying in bed, and should be carried right up to the ceiling; they should open inwards and to their full extent, as well as being entirely removable. Open fireplaces should be avoided, and the heating provided should be such that the room may be warmed speedily. The doorway should allow the bed to pass. The room should be as close to dining-rooms, bath and watercloset as possible, and separated from them by the least number of steps. The usual hospital precautions against dust should be taken, and the walls and floor should be made as sound-proof as possible.

Miss Jane Walker, M.D., then read a paper entitled "Notes on the Construction of a Sanatorium from a Medical Point of View." The following is a summary:—

In building a sanatorium for the treatment of consumptive patients we must keep ever before our minds the meaning of the so-called "open-air treatment." This term, which has come into very general use, is a convenient one, but is apt to be misleading, for it has

lead not only the general public but even people in authority to assert that all that is required is open air, and that if windows are only opened consumption will diminish and in time cease to exist. Now the sanatorium treatment of consumption is a great deal more than this. It is a minute and elaborate system made up of endless details, all of which are important. It is not enough to say, Open all windows in all weathers and all will be well; nor even to add, Feed all patients very plentifully. With these two points, essential as they are, must be united careful regulation of exercise and rest and constant medical supervision. No two cases can be treated on exactly the same lines: the sick individual, and not the individual sickness, must concern us; in other words, the reaction of a patient to his environment is a very important element in the cure of consumption.

In building a sanatorium for a large number of phthisical patients the points which must be kept specially in mind are that just as

Overcrowding and want of Sunlight

and of fresh air are factors in promoting the disease, so abundant space for each patient, and, if it may be so stated, a superabundant supply of fresh air and light, are among the chief means of combating the disease. Abundant sunlight and fresh air are necessary on two grounds: firstly, because they tend directly to kill the organisms of disease; and, secondly, because they increase the patient's power of resistance; whereas impure air keeps him in a low state of health and so renders him an easy prey to the inroads of the tubercle bacillus.

There is in some minds a great feeling against treating patients in a sanatorium instead of in their own homes, partly because of the supposed danger of massing a large number of consumptive patients together, and partly because of the fear lest the treatment in a sanatorium should degenerate into a mere routine by which every patient is treated exactly alike. The first danger is overcome by (in addition to antiseptic precautions) spreading the sanatorium buildings over a large area in a somewhat isolated spot; and the second by realising that the sanatorium treatment is essentially individualistic.

The following conditions are necessary for an establishment for consumptive patients. The building must be placed on a slope facing south, and at such an elevation above the surrounding country that air is ensured free from the impurities caused by industrial establishments, business or traffic of any kind. The building should be surrounded by woods, meadows and streams, and the farm should be at some distance from the sanatorium.

The sanatorium should be so constructed that the strictest attention can be easily paid to cleanliness; the heating should be by some central system. The greatest restrictions should be placed upon all accessories, such as carpets and curtains, &c., which may harbour dust, and the lighting should be by electricity. But as, in spite of the best ventilation, the air inside a building is never so pure as that without, arrangements must be made to allow of patients spending as much time as possible in the open air, so that the rooms are used practically for sleeping only. In this climate verandahs are a mistake; they keep off sunlight and air. There should be covered shelters either quite away from the house or built as an extension of the corridors.

A very important element in the possibility of constantly living in the open air, and of rational ventilation, is protection from wind. This can best be obtained by placing the building on the slope of a hill at some distance from the top and facing nearly due south. A south wind is rare, and as it nearly always brings rain it cannot bring dust, and, therefore, is the least harmful that blows. Another point in the efficient ventilation of the building is the construction and situation of the windows. It is essential that the patients' part of the building, at any rate, should be only one room thick, the rooms facing south, with a corridor behind, into which open windows facing north. Each patients' room should have, practically, the whole of the south side window space; the lower part of the window should be of the casement type, as sash windows at the best only allow of half the available space being used as fresh-air inlet; the upper part of the windows should be flaps or casements, falling inwards. On the north side of the rooms should be a similar series of upper windows, which should be opposite to the windows in the corridor.

In a building such as this, standing in complete isolation, the only source of infection can be from the patients themselves. To eliminate risk from this source as much as possible, all excreta must be rendered harmless, and care must be taken that no infectious disease be able to spread. The means by which this is obtained are by total prohibition of all promiscuous expectoration, by providing each patient with a suitable portable spitting flask when he is out of his room, and placing a properly fitting cup in each bedroom; by having a disinfecting chamber for furniture, clothes, bedding, &c.; by having walls that can be colour-washed and floors that are impermeable. All these measures should be taken not only to render the tubercle bacilli harmless but also to eliminate the various other micro-organisms which endanger health. Owing to these precautions, the prophylactic treatment of persons of a phthisical tendency, especially children, can go on side by side with that of consumptive patients.

As carefully-regulated exercise and rest play important parts in the curative treatment of consumption, it is necessary in an establishment of this kind to have due facilities for carrying out these two factors in the treatment. The great end in view is to strengthen the heart and body muscles, and with this object the building should be surrounded by paths at varying gradients, some shady, some sunny, and all free from dust. Arrangements should be made for sufficient rest and avoidance of over-fatigue by providing a large number of benches and covered seats at intervals along the paths. There should also be a suitable couch in each patient's room, and an ample supply of reclining chairs in all the shelters of a kind not injured if left out in all weathers.

The subject of the sanitation of a sanatorium is important. In view of the fact that the Royal Sewage Commission in their interim report practically admit the possibility of bacterial processes producing reasonably good effluents, it would seem that either land treatment or treatment by one or other of the bacterial processes might be adopted. The exact method of

Sewage-Disposal

will depend on the nature of the soil surrounding the sanatorium and also on the slope of the ground. If the soil be light, sandy loam, and the slope and other conditions favourable, land treatment should be preferred. If, on the other hand, the soil be peat or clogging sand, such as Bagshot sand, probably a septic tank, followed by some form of bacterial bed, will be the best method.

It is extremely doubtful if any of bacterial beds can be relied on to destroy pathogenic germs. In the case of the land effluents the destruction of pathogenic germs could not be relied on, but no doubt mechanical separation of the organisms takes place, and also, the process being slow as compared with bacteria beds, pathogenic germs would be more apt to be destroyed. Thermal processes, though best on theoretical grounds, cannot compete in point of cost with chemical methods. The ozone method has been tried with apparent success on the continent, both with water and sewage effluents, but the cost of installation is a serious element. I should feel inclined to advocate the use of chlorine compounds; for example, bleaching powder, or else sodium hypochlorite. These chemicals are cheap; the former can be bought anywhere, and the latter from the United Alkali Company, and they are possessed of conspicuous germicidal properties.

To supplement the remarks of Mr. Brewer on the internal arrangements of the sanatorium, I have a few observations on

The Treatment of the Walls.

The walls of the bed- and sitting-rooms and of the corridors should be painted or colour-washed with some cheap material. It is not advisable to have varnished walls. There is a constant percolation of air through the ceilings and walls of ordinary dwelling-houses, sufficient to materially aid in their ventilation. By varnishing walls, not only is the air prevented from gaining access to the rooms, but a cool surface is presented upon which in cold weather the warmer air of the rooms condenses, and a continual state of moisture of the walls results, which, especially in damp or foggy weather, may be described as sweating. I have found, by personal experience of a varnished bedroom, that all metal things, such as keys, scissors, &c., are continually rusty, if kept in it, and that the room tends to have a damp, musty smell, and that in spite of perpetual open windows.

If walls are colour-washed, and done again as a routine thing from time to time, and the walls of the bedrooms are done always when a patient leaves the sanatorium, the expense is not great, and the certainty that the walls are clean and aseptic is secured.

Discussion.

Mr. Edwin T. Hall proposed a vote of thanks to the authors. He said radiators should be placed at the back of the room. In a hospital of course they were placed under the windows to prevent draughts, but in a sanatorium the windows were open and the case was different. Mr. Keith D. Young seconded the vote. The secretary of the Mount Vernon Hospital for Consumption, Mr. Arnold Mitchell, Mr. Hare and Dr. Hudson also spoke. Dr. F. J. Wethered said the successful prize essays in the King's Competition for a sanatorium would be published very shortly.

Mr. Brewer and Dr. Walker briefly replied. The latter said windows opening to the ground were objectionable as they destroyed privacy. Only one laundry was necessary.

The Royal Architectural Museum.

A special general meeting of the Architectural Association was held on Monday evening last to adopt a resolution accepting the gift of the Royal Architectural Museum at Westminster as premises for the Association. Mr. Henry T. Hare, F.R.I.B.A., presided, who, in proposing the resolution, said the chief conditions were the payment of about £700 deficit, the maintenance of the Museum free to the public, small compensation to one of the art masters, and the retention of the present Curator, whose services would no doubt be of great value to the Association. He then read letters approving the scheme from Messrs. H. L. Florence, T. Watson, A. T. Bolton, Rudge, J. Norton, C. H. Brodie, Ll. Down and A. O. Collard. Mr. Louis Ambler seconded the resolution, which was supported by Messrs. W. H. Seth-Smith, Maurice B. Adams, F. T. Baggallay, C. F. Hayward, O. Fleming, E. O. Sachs, T. Blashill, F. N. Reckitt, H. Satchell, T. H. Watson, W. H. White, Lishman, R. P. Jones, and E. H. Swinfen Harris. It was carried unanimously, and on the motion of Mr. Hare a vote of thanks was accorded Mr. M. B. Adams, Mr. Seth-Smith, and the Council of the Museum.

CHURCH OF ST. COLUMBA, EDINBURGH.

THIS new Established church is to be erected on a prominent corner site on the Queensferry Road. It is designed in the Norman style. The exterior is very simply treated in a manner characteristic of Scottish mediæval work. The entrance is in the tower, which is large and square on plan and is finished with an octagonal stone spirelet. The plan consists of a nave, with a semi-circular apse, and two side aisles. Part of the north aisle is increased in width to form a chapel with an apsidal termination. The semi-circular domes of the apses, which form important features of the interior, it is proposed to richly decorate with mosaic or fresco. The rest of the interior will be finished in stone. The church will accommodate 900 persons. The halls and offices are grouped at the east end of the church around a garth. The large hall accommodates 345 persons. The total cost will be between £7,000 and £8,000. The architect is Mr. P. Macgregor Chalmers, I.A., of Glasgow. The drawing illustrated on this page is by Mr. J. Jeffrey Waddell.



CHURCH OF ST. COLUMBA, BLACKHALL, EDINBURGH.
P. MACGREGOR CHALMERS, I.A., ARCHITECT.

EDINBURGH A.A.

The Palace of Versailles.

THE Associate Section of the Edinburgh Architectural Association held their first ordinary meeting on Wednesday last in the rooms at 117, George Street, Mr. J. Douglas Trail occupying the chair.

Mr. John Wilson read a paper on "The Palace of Versailles." He began by making some references to the historical interest of the building. It is intimately connected with the lives of Louis XIV., XV. and XVI. of France, and also of Marie Antoinette. The palace is situated close to the town of Versailles, about sixteen miles from Paris. Though founded by Louis XIII., Louis XIV. practically built the whole palace during the latter half of the seventeenth century. The approach and great court are on a scale commensurate with the size and magnificence of the building. The entrance front is plain and dignified, but the terrace or garden front is sumptuous and is in keeping with the grandeur of the gardens. It was mentioned that the Renaissance part of Hampton Court Palace was somewhat like Versailles. It is well known that the architect of Hampton Court studied the Palace of Versailles before designing the building. In size Versailles cannot be compared with any of our own palaces, as it is fully twice as large as Hampton Court Palace. The chapel, which is seen on the entrance front, is a very fine piece of work. The marble or state rooms were next described. These rooms are each named after one or other of the planets, and have the walls covered with marble mosaic, with the ceilings painted and gilded. Special mention was made of the Room of Hercules. This room is nearly 60ft. square and was the Court ball-room of the eighteenth century. The Glass Gallery—the glory of Versailles—was next described. It is nearly 250ft. long by 34ft. wide. It is a marble apartment with the ceiling gorgeously gilded and painted. There are two companion rooms, one of War and the other of Peace, with the nature of the decoration consistent with their respective names. It was noticed that in the marble treatment of the foregoing rooms the aim seems to have been to work from a dark centre out to a light margin in the panels. The Queen's Staircase was also described. This beautiful marble staircase was used in the daily round of Court life. In all these rooms there is in the nature of the ornament of the rooms a subtle flattery of the Grand Monarch who loved to call himself "Le Roi du Soleil." The interior of the chapel was mentioned as worthy of more than a passing glance. The whole detail of the building is of a refined nature. There are three great paintings on the barrel roof. The other rooms are wood panelled, finished in white and gold. Historically some of them are very interesting.

The Room of the Ox-eye—the famous Œil-de-Bœuf of Carlyle's "Revolution"—was described; also Louis XIV.'s bedrooms, from the windows of which Louis XVI. and Marie Antoinette appeared in order to appease the Parisian mob on that eventful October day.

A number of interesting slides were shown of the gardens. These were designed by Le Notre. His name is the greatest in the whole history of gardening, and has become a synonym for the highest magnificence in architectural or formal gardening. These gardens cost, when finished, about 8 millions of francs. In front of the garden front there are two large ponds, around which are bronze groups which are said to form the finest collection in Europe. From the terrace there is to be seen the famous vista—one of the most imposing in France—of gardens, fountains, canals, lawn and woodland. There are many bosquets or groves, each of which is the size of a large garden. The marble statues and vases are all the work of the great sculptors of Louis XIV.'s reign.

The extreme etiquette of Court life led Louis XIV. to build a place of retreat about a mile from the palace. This he called the Grand Trianon, which both externally and internally is comparatively simple. A little to the north is another villa built by Louis XV. and presented later to Marie Antoinette. The Petit Trianon, as it is called, is associated with only one name and that of the ill-fated queen mentioned above. When we remember that the place was once a barren and sandy waste, and that now it is a fertile and beautiful garden, we can faintly realise the herculean labours of those who built the palace and laid out the gardens for the Grand Monarch. There is a feeling of artificiality about the whole place; buildings and parterres are all constructed for men studious of their own dignity and observers of the proprieties.

A vote of thanks to the lecturer was proposed by Mr. J. A. Arnott, and seconded by Mr. Ramsay Traquer.

The new Nave of Truro Cathedral is expected to be completed next May, and a committee has been appointed to make arrangements for a grand formal opening. The choir and transepts were consecrated in 1887, and part of the nave has been in use for some time. The principal portion of the work yet to be done is the groining of the aisle. It is satisfactory to know that no further cracks have appeared in the bases of the pillars, nor any serious signs of settlement.

Keystones.

Mr. Alexander Wheelan, builder and contractor, of Canal Street, Newry, died last week at the age of sixty-three years.

Carlung Mansion, situated near West Kilbridge, Ayrshire, was burnt to the ground last week, the damage being estimated at £90,000.

A Victoria Memorial in Florence. — A carved walnut pulpit, erected to the memory of Queen Victoria, has been inaugurated in the English Roman Catholic Church of Florence.

Lombard Street Signs to be taken down.—The ornamental signs erected by the bankers of Lombard Street in connection with the Coronation festivities are to be removed as they are contrary to the regulation which the Corporation has adopted.

A Stained-glass Window in Clewer St. Andrew's Church, Windsor, has been erected by his son, Mr. W. Glover, F.R.I.B.A., in memory of the late Mr. William Glover, who held office as Tapissier-in-Ordinary to Queen Victoria when he died in 1864.

R.I.B.A. Colonial Examinations.—Messrs. C. H. Hopson (Sydney, Canada), T. McLaren (Montreal) and A Woodroofe (Vancouver, B.C.) have passed the examination qualifying for Associateship R.I.B.A. held last July at Montreal (Canada); and Mr. C. H. Ballantyne (Melbourne) has passed a similar examination held at Melbourne (Australia).

The City's Victoria Memorial.—Good progress is being made with the memorial tablet which will shortly be placed in position at the City boundary on the Thames Embankment to commemorate the last visit that was paid to the City by Queen Victoria. The tablet, which has been designed by the City architect (Mr. A. Murray), is composed of Portland stone, and will measure over 9ft. from the pavement level by 4ft. wide. The work is being executed by Messrs. Daymond & Sons.

Ulster Society of Architects.—The fortnightly meeting of the students' designing club of this Society was held at 16, High Street, Belfast, on November 17th, Mr. W. J. Gilliland (vice-president) in the chair. A paper was read by Mr. W. J. Fennell, M.R.I.A.I., on old buildings of Down and Antrim. Beginning with the ancient Franciscan priory in Holywood, co. Down, the lecturer referred to the more important architectural remains in the two counties, including those at Movilla, Carrickfergus Castle and Church, Dunluce Castle, Newtonards Church, Grey Abbey, Inch Abbey, Dundrum Castle and many others. The lecture was illustrated by a fine collection of lantern slides from photographs taken mainly by Mr. Fennell himself, showing both interiors and exteriors, also such of the architectural detail remaining in each.

The National Trust for Places of Historic Interest or Natural Beauty held its annual general meeting recently. Mr. J. C. Bailey presided. The report stated that an acquisition made during the past year had been that of the monument erected on the Dorset coast to the memory of Sir Thomas Hardy, Nelson's flag-captain. The tower had been handed over to the Trust on a 500 years' lease, while a maintenance fund had been presented to the Trust. The council regretted the action of the owner of Stonehenge in surrounding the stones with a barbed-wire fence, because it believed that in doing so he had not only obstructed public rights of way, but had done grave injury to the monument in its relation to the surrounding country. The report was adopted, and the members of the council were afterwards re-elected, with the addition of the names of Mr. Y. Anderson, Dr. G. Dawtrey Drewitt and Mr. O. Fleming.

A Church of St. Christopher at Haslemere is being erected.

The Queen Victoria Memorial Fund now amounts to nearly £230,000.

A Marble Statue of Queen Victoria by Mr. Williamson is to be erected at Perth, Western Australia.

At St. Michael's Church, Brighton, a reredos is to be erected at the back of the high altar at an estimated cost of £1,538.

Whitchurch Parish Church has been decorated and renovated during the past twelve months at a cost of over £2,000. Mr. Nicholson, of London, was the architect.

Notice of Removal.—Messrs. Barrett & Driver, architects and surveyors, have removed from 53, Blomfield Road, Maida Vale, W., to 23, York Place, Baker Street, W.

A Church at Melton Constable is to be erected. It was originally proposed to rebuild the old church near Melton, which is that of the decayed parish of Burgh Parva.

The Chateau d'Eu, the residence of the Duc d'Orleans, about 17 miles from Dieppe, was partly destroyed by fire last week, the west wing being completely burnt out. Fortunately all the art treasures which it contained were saved.

Millais' House.—The house at Palace Gate formerly occupied by Sir John Millais has at last found a new tenant, and painters and decorators are at work in the lofty studio and spacious rooms designed by Philip Hardwick five-and-twenty years ago. It is said that the house has been taken for the representative in London of one of the South American Republics.

New Students R.I.B.A.—Mr. J. W. Cabré (Liverpool) and Mr. L. M. Newell (Ledsham, near Chester) have been exempted from sitting for the R.I.B.A. Intermediate Examination and admitted as students—they having obtained Prof. F. M. Simpson's Final Leaving Certificate at University College, Liverpool, and their Testimonies of Study having been found satisfactory by the Board of Examiners.

Leeds and Yorkshire Architectural Society.—The first of a series of "Craft Evenings" inaugurated by the above Society was held last week, the president, Mr. Butler Wilson, in the chair. Mr. John Wright, of the Royal Painter-Etchers' Society, discoursed on "The Evolution of an Etching." The various processes of etching, aquatint, mezzotint, and dry-point were also explained, whilst the making of an etching from its commencement to the completed print was practically demonstrated.

To Architectural Photographers. — The following set of six cards (new edition) can be obtained by sending a penny stamp to "The Photogram," Effingham House, Arundel Street, Strand, W.C.:— Guide to correct exposure in outdoor work and copying; table of enlargements and reduction telephoto rules; directions and chart for fixing the time of best lighting of any view; thermometer scale and photographic temperatures; weights and measures, British and metric; and how to see stereoscopic slides without a stereoscope.

Awards to Painters. — The following awards have been made to students attending the Bradford Municipal Technical College by the National Association of Master-Painters: — The International Travelling Scholarship, value £50, G. M. Atkins. Class 1, three marble panels, second prize, W. Feather; grained oak panel, forty minutes' time test, first prize, F. Shaw. Class 2, theory, third prize, C. L. Craven; painted panels, second prize, C. I. Craven. Class 3, painted panels, second prize, D. Hart; third prize, N. Musgrave; writing, third prize, N. Musgrave.

At Minterne, near Sherborne, Lord Digby is building a new house from designs by Mr. Leonard Stokes.

A Lecture on "Grecian Architecture" was given by Mr. G. A. T. Middleton at the Camera Club last week.

Mr. Laurence Youngs, of 74, Above Bar, Southampton, has been reinstated as an A.R.I.B.A.

Competition for Central Reference Library, Bristol.—The awards in this competition have been made as follows:—1st premium, Mr. H. Percy Adams, F.R.I.B.A. (London); 2nd premium, Messrs. Knott & Collins (London, S.W.); 3rd premium, Mr. A. J. Butler (Cradley Heath).

A new Church at Preston Park, Brighton, designed by the late Sir Arthur Blomfield, has been erected. At present only the nave has been completed. When the chancel and side chapel are added accommodation will be provided for 1,000 worshippers. It is Early English in style.

A Church at Annbank Station has been erected. Externally, the front is of red sandstone, the walls being buttressed and rough-cast. The architect was Mr. Eaglesham, Ayr. The contractors for the work were as follows:—Builder, Dick; joiner, M'Intyre; plasterer, Miller; plumber, Dalrymple; painter, Fraser—all of Ayr.

SUGGESTIONS TO YOUNG ARCHITECTS.

At last week's opening sessional meeting of the Dundee Institute of Architecture, Science and Art, Mr. A. A. Symon (president) delivered his inaugural address. Mr. Alexander Grieve, who occupied the chair, briefly referred to the amalgamation of the Institute with the Graphic Arts Association, and suggested, in the interests of Dundee arts, the coalition on similar lines of the various local organisations dealing with such matters

The president, whose paper was entitled "Some Suggestions for Young Architects," said that most lads who entered the profession did not do so for the purpose of making money. If anyone was foolish enough to harbour ideas of that sort he would not be very long in being disillusioned. Entry into an architect's office involved much hard work, but the prospect was not such as should discourage any young man. An apprentice's first duty was to keep his eyes open. He should be ever on the alert, and ready to improve his time, for deficient powers of observation always resulted in failure. They should never be afraid of displaying their ignorance. They were all learning, and it seemed to him that so many things went to make up an architect's education that it would be impossible to acquire them all in a lifetime. He deprecated the present-day system of young men making football and recreation the business of existence. He advocated at this stage of an architect's career the closest attention to study, and counselled the younger members of the profession to avail themselves fully of the classes at their disposal. On the completion of his apprenticeship an architect should seek employment in some other large centre, and there watch the methods of other people. When he suggested this course, however, he did not mean that they should remain away. There were as good opportunities at home as in other large centres, and they had as much need for educated architects in Dundee as anywhere else. In conclusion, the president advised every member to gain some practical knowledge of materials, as such would prove of great value in his professional life.

Complete List of Contracts Open.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDERS MAY BE OBTAINED.
	BUILDING:		
Nov. 27	Gateshead—Hospital Buildings	Corporation	J. Bower, Borough Engineer, Town Hall, Gateshead.
,, 27	Leamington—Alterations to Town Hall	Corporation	Borough Engineer, Town Hall, Leamington.
,, 27	Bishop Auckland—Minister's House		T. Deadman, 2 Croft Terrace, Coundon.
,, 27	Bristol—Offices, &c.	Waterworks Co.	H. Williams, Architect, Alliance Chambers, Corn Street, Bristol.
,, 27	North Shields—Extension of Schools	Tynemouth School Board	Marshall & Tweedy, 17 Eldon Square, Newcastle-upon-Tyne.
,, 27	Kendal—House	J. W. Atkins	J. F. Curwen, Architect, Highgate, Kendal.
,, 27	Preston—Mortuary, &c., at Police Station	Corporation	Borough Surveyor, Town Hall, Preston.
,, 27	Preston—Public Convenience	Corporation	Borough Surveyor, Town Hall, Preston.
,, 27	Bradford—Retorts, Firebricks and Fireclay	Corporation	Gas Engineer, Town Hall, Bradford.
,, 27	Cardiff—Jobbing Mason's and Bricklayer's Work	Corporation	C. H. Priestley, Waterworks Engineer, Town Hall, Cardiff.
,, 28	London, S.W.—Encaustic Memorial Tablets	London County Council	County Hall, Spring Gardens, S.W.
,, 28	Manchester—Fireclay Goods	Gas Committee	C. Nickson, Superintendent, Gas Offices, Town Hall, Manchester.
,, 28	Warrington—Cement, Bricks, &c.	Cheshire Lines Committee	S. S. Barton Storekeeper, Cheshire Lines, Warrington.
,, 28	Grimsby—Foreman's Office, &c.	Corporation	H. G. Whyatt, Borough Engineer, Town Hall Square, Grimsby.
,, 28	Hull—Car Shed, &c	Corporation	A. E. White, City Engineer, Town Hall, Hull.
,, 28	Skegness, Lincs—Factory Manager's House, &c.	Lee & Green, Ltd.	J. Clare, Architect, Sleaford.
,, 29	Churchdown, near Gloucester—Church		W. B. Wood, 12 Queen Street, Gloucester.
,, 29	Clayton, Yorks—House and Two Shops		S. Spencer, 344 Great Horton Road, Bradford.
,, 29	Elgin—Villa		Sutherland & Jameson, Architects, Elgin.
,, 29	Sheffield—Addition to School	School Board	Holmes & Watson, St. James's Chambers, Church Street, Sheffield.
,, 29	Penzance—Knitting Factory	Gibson & Walter	N. C. Whear, jun., Architect, Penzance.
,, 29	Llandrindod Wells—House	Mr. Yates	R. W. Thomas, Architect, Llandrindod Wells.
Dec. 1	Malton Yorks—Pair of Semi-detached Houses	G. H. Bradford	Broderick, Lowther & Walker, 77 Lowgate, Hull.
,, 1	Didcot—Alterations and Additions to School	School Board	Hoare & Wheeler, 7 Friar Street, Reading.
,, 1	Aughnacloy, Ireland—Church	Rev. W. H. Booth	D. W. Morris, 68 Harcourt Street, Dublin.
,, 1	London, N.—Laboratory, &c.	Finchley Urban District Council	E. H. Lister, Clerk, Council Offices, Finchley Hall, Finchley, N.
,, 1	London, S.W.—Buildings, &c.	Wandsworth Borough Council	Surveyor, 215 Balham High Road, S.W.
,, 1	Cork—Memorial		S. F. Hynes, 21 South Mall, Cork.
,, 1	Eversley, Hants—Bridge Substructure		W. J. Taylor, County Surveyor, The Castle, Winchester.
,, 1	Felixstowe Fire Station	Urban District Council	Surveyor, Town Hall, Felixstowe.
,, 1	Kilkenny—Bank Premises	Hibernian Bank, Ltd.	W. H. Byrne & Son, 20 Suffolk Street, Dublin.
,, 2	London, W.—Stables	Great Western Railway Co.	Engineer, Paddington Station.
,, 2	Dublin—Cement, Lime, Slates, &c	Midland Gt. Western Rly. Co.	General Stores Department, Broadstone Station, Dublin.
,, 3	Newcastle-on-Tyne—Additions, &c., to Business Premises	North-Eastern Railway Co.	W. Bell, Company's Architect, Central Station, Newcastle-on-Tyne.
,, 3	Dartford, Kent—Rebuilding 2 Refuse Destructors, &c.	Metropolitan Asylums Board	T. D. Mann, Clerk, Board's Offices, Embankment, E.C.
,, 3	Tooting Bec Common, S.W.—Home for Children & Stabling	Metropolitan Asylums Board	A. & C. Harston, 15 Leadenhall Street, E.C.
,, 3	Sheerness—Bakery	Economical Society, Ltd.	J. H. Burrows 32 High Street, Sheerness.
,, 5	London—Sewers, Subways, &c.	Corporation	Engineer, Guildhall, E.C.
,, 5	Colchester—Nurses' Quarters at Workhouse	Guardians	Goodey & Cressall, Architects, Victoria Chambers, Colchester.
,, 5	Sheffield—Buildings	University College	Gibbs & Flockton, 15 St. James's Row, Sheffield.
,, 6	Belfast—Alterations to Church		T. Houston, Architect, Kingscourt, Wellington Place, Belfast.
,, 6	Walsall—School Buildings	School Board	Bailey & M'Connal, Architects, Bridge Street, Walsall.
,, 6	Walsall—School	School Board	H. E. Lavender, Architect, Bridge Street, Walsall.
,, 6	Llansawel, Wales—Reconstruction of Chapel		D. Jenkins, Architect, Llandilo.
,, 8	Bexley Heath, Kent—Car-shed Buildings	Urban District Council	Mordey & Dawbarn, 82 Victoria Street, S.W.
,, 10	Ventnor, I.W.—Isolation Hospital	Undercliffe Hospital Committee	G. Boughton, Architect, "Woodlands," Ryde, I.W.
,, 11	London, S.W.—Victoria and Albert Museum Superstructure	Commisssioners of H.M. Works	H.M. Office of Works, Storey's Gate, Westminster, S.W.
	ENGINEERING:		
Nov. 27	Bridgwater—Ship's Berthing	Corporation	F. Parr, Borough Surveyor, Municipal Buildings, High Street.
,, 27	Cardiff—Engine Repairs, &c.	Corporation	C. H. Priestley, Town Hall, Cardiff.
,, 27	London, N.—Fire Mains	St. Mary's Guardians, Islington	W. Smith, 65 Chancery Lane, W.C.
,, 28	Crajora—Water Supply		W. H. Lindley, Frankfort-on-Maine, Germany.
,, 28	Sunderland—Electric Plant	Corporation	J. F. C. Snell, Town Hall, Sunderland.
,, 28	Burton-on-Trent—Inclined Retort Plant	Corporation	F. L. Ramsden, Gas & Electricity Light Works, Burton-upon-Trent.
,, 28	London, N.—Electric Plant	Finchley U.D.C.	E. Calvert, Council's Electrical Engineer, Broadway, Finchley, N.
,, 29	Darlington—Pumping Station, &c.	Rural District Council	C. H. Leach, Clerk, Union Offices, Darlington.
,, 29	Edinburgh—Waterworks	Water Trustees	W. A. Tait, 72A George Street, Edinburgh.
,, 29	Frinton-on-Sea, Essex—Groynes	Urban District Council	T. A. Cressy, Surveyor, Clacton-on-Sea.
,, 29	Manchester—Tank	Gas Committee	C. Nickson, Superintendent, Gas Dept., Town Hall, Manchester.
,, 29	Manchester—Reconstruction of Bridge		City Surveyor, Town Hall, Manchester.
,, 30	Shanghai—Electric Lighting	British Municipal Councils	Office of the Board of Trade, 50 Parliament Street, S.W.
Dec. 1	Dumfries, Scotland—Electric Lighting	Town Council	J. Grierson, Town Clerk, Dumfries.
,, 1	Plymouth—Sewerage Works	Corporation	J. Mansergh & Sons, 5 Victoria Street, Westminster.
,, 1	Blackpool—Storage Culvert, &c.	Sewerage Board	A. Hindle, 44 Abingdon Street, Blackpool.
,, 1	Felixstowe—Fire Engine, &c.	Urban District Council	F. B. Jennings, Clerk, Town Hall, Felixstowe.
,, 1	Selkirk—Gas Engine, &c.	Town Council	H. W. Taylor, Engr., St. Nicholas Chambers, Newcastle-upon Tyne.
,, 1	Mansfield—Wiring, &c.	Corporation	R. Hammond, 64 Victoria Street, S.W.
,, 1	Swansea—Electric Motors, &c.	Corporation	C. A. L. Prusmann, Electricity Works, Strand, Swansea.
,, 1	Upholland, Lancs—Reservoir, &c.	Urban District Council	Surveyor, Council Offices Alma Hill, Upholland.
,, 2	Adelaide, South Australia—Harbour		Agent-General for South Australia, 1 Crosby Square, London.
,, 2	Whitland and Tavistock—Footbridges	Great Western Railway Co.	Engineer, Paddington Station.
,, 3	Great Marlow—Reservoir, &c.	Water Co., Ltd.	W. V. Graham, 5 Queen Anne's Gate, Westminster.
,, 3	Yeovile Gasholder	Gas Committee	E. Howell, Secretary, Gasworks, Yeovil.
,, 4	Llandudno—Water Main	Urban District Council	E. P. Stephenson, Engineer, Council Office, Llandudno.
,, 5	Durban, Natal—Telephone System	Corporation	Webster, Steel & Co., 5 East India Avenue, Leadenhall St., E.C.
,, 6	Kyleakin, Skye—Piping		J. A. H. Mackenzie, Architect, Portree.
,, 8	Manchester—Fire-Boat	Watch Committee	Chief Officer of the Fire Brigade, Jackson's Row, Manchester.
,, 10	Harwich—Dredging Harbour	Harbour Conservancy Board	T. Miller, 9 Thoroughfare, Ipswich.
,, 13	Madrid—Canal Reservoir		Office of Ministry of Agriculture, Commerce & Public Wks., Madrid.
,, 15	Monte Video, Uruguay—Sanitary Works	Uruguayan Government	Consulate-General of Uruguay, Edinburgh Mansions, Howick Place, Victoria Street, S.W.
,, 15	Pontypridd—Gasholder Lift	Urban District Council	E. Jones, Engineer, Treforest.
,, 20	Alexandria, Egypt—Steamer		Inspector of Irrigation, Third Circle, Alexandria.
,, 22	Clacton-on-Sea—Electrical Plant	Urban District Council	W. H. Trentham, 39 Victoria Street, Westminster, S.W.
,, 22	Perth, Western Australia—Rubbish Destructor	City Council	Agent-General for Western Australia, 15 Victoria St., Westminster.
	FURNITURE:		
Nov. 29	Newcastle-on-Tyne—Furniture, &c., at Police Station	Watch Committee	Chief Constable, Pilgrim Street, Newcastle.
Dec. 1	Leyton, E.—Furniture	School Board	W. Jacques, 2 Fen Court, Fenchurch Street, E.C.
,, 13	Cannock, Staffs—Furniture, &c.	Workhouse Guardians	A. W. Carver, Clerk, Union Offices, Cannock.
	IRON AND STEEL:		
Nov. 27	Cardiff—Manhole Covers, Pipes, &c.	Corporation	C. H. Priestley, Waterworks Engineers, Town Hall, Cardiff.
,, 27	London, E.C.—Tools and Stores	Burma Railways Co., Ltd.	Secretary, 76 Gresham House, Old Broad Street, E.C.
,, 27	Chatham—Manhole Covers, Shovels, &c.	Town Council	C. Day, Borough Surveyor, Town Hall, Chatham.
,, 28	Warrington—Stores	Cheshire Lines Committee	S. S. Barton, Storekeeper, Cheshire Lines, Warrington.
,, 29	Swansea—Castings, &c.	Harbour Trustees	Engineer, Harbour Office, Swansea.
Dec. 1	Blackpool—Pipes, &c.	Sewerage Board	A. Hindle, 44 Abingdon Street, Blackpool.
,, 2	Dublin—Stores	Midland Great Western Rly. Co.	General Stores Department, Broadstone Station, Dublin.
,, 3	Amsterdam—Iron and Steel	Netherlands Minister of Colonies	Mart. Nyhoff, The Hague.
,, 6	Dublin—Castings, Tools, Galvanised Iron, &c.	Grand Canal Co.	G. Tough, General Manager, James's Sreet Harbour, Dublin.
,, 8	Aberaman, Aberdare—Stores	Powell Duffryn Coal Co., Ltd.	Stores Manager, Aberaman Offices, near Aberdare.
,, 8	Dublin Stores	Tramways Co.	R. S. Tresilian, 9 Upper Sackville Street, Dublin.
,, 8	South Helton, Durham—Colliery Stores	Coal Co.	J. R. Lambert, South Hetton, Sunderland.
,, 10	Dublin—Castings, Ironmongery, &c.	Ports and Docks Board	N. Proud, Secretary, Port & Docks Office, Westmoreland St., Dublin.
	PAINTING AND PLUMBING:		
Nov. 28	Warrington—White Lead, Oils, &c.	Cheshire Lines Committee	S. S. Barton, Storekeeper, Cheshire Lines, Warrington.
Dec. 1	Halifax—Painting, &c.	School Board	W. H. Ostler, 22 Union Street, Halifax.
,, 1	Sheffield—Plumber and Glazier's Work	School Board	J. F. Moss, Clerk, Board's Office, Sheffield.
,, 2	Dublin—Varnish, Paints, Oil, &c.	Midland Great Western Rly. Co.	General Stores Department, Broadstone Station, Dublin.

Complete List of Contracts Open.—*continued*

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDERS MAY BE OBTAINED.
	PAINTING AND PLUMBING—*continued.*		
Dec. 3	Harrogate—Colouring, Painting, Paperhanging, &c.		B. Shaw, Royal Bath Hospital and Convalescent Home, Harrogate.
,, 6	Dublin—Paints. Varnish. &c.	Grand Canal Co.	G. Lough, General Manager, James's Street Harbour, Dublin.
,, 8	Dublin—Oils, Paints, Glass, &c.	Tramways Co.	R. S. Tresilian, 9 Upper Sackville Street, Dublin.
,, 10	Dublin—Paints, Oils, Pitch, &c.	Port and Docks Boards	N. Proud, Secretary, Port and Docks Office, Westmoreland Street, Dublin.
	ROADS AND CARTAGE:		
Nov. 27	Chatham—Gravel, Sand, Crushed Ragstone, &c.	Town Council	C. Day Borough Surveyor, Town Hall, Chatham.
,, 29	Leighton Buzzard—Hire of Roller and Water Cart	Wing R.D.C.	J. Newton, Clerk. Leighton Buzzard.
Dec. 1	Biggleswade—Kerbing, &c.	Rural District Council	J. Owen-Jones, Surveyor, Biggleswade.
,, 1	Birmingham—Road Material.	Warwickshire County Council	J. Wilmot. County Surveyor. Birmingham.
,, 1	London, N.—Making-up		Vigers & Co., 4 Frederick's Place, Old Jewry, E.C.
,, 1	Netherne, near Coulsdon, Surrey—Road Foundations	Surrey County Council	G. T. Hine, 35 Parliament Street, Westminster.
,, 1	New Malden—Reforming Road, &c.	Urban District Council	T. V. H. Davison, Council Offices, New Malden.
,, 1	Prestwich, Lancs—Street Works	Urban District Council	Surveyor, Chester Bank, Prestwich.
,, 1	Southwick, Sussex—Street Works	Urban District Council	G. W. Warr, Surveyor, Council Offices, Southwick.
,, 1	London, S.E.—Paving and Making-up Street	Camberwell Borough Council	W. Oxtoby, Borough Engineer, Town Hall, Camberwell, S.E.
,, 2	London, N.—Broken Granite	Southgate U.D.C.	Surveyor, Council Offices, Palmer's Green, N.
,, 2	Dover—Street Improvements	Town Council	H. E. Stilgoe. Borough Engineer, Maison Dieu House, Dover.
,, 3	Chiswick, W.—Making-up Roads	Urban District Council	A. Ramsden, Surveyor, Town Hall, Chiswick.
,, 4	Sedgley—Hauling	Urban District Council	Manager, Gasworks, Sedgley.
,, 10	Dublin—Cartage, Paving Setts, &c.	Port and Docks Board	N. Proud, Secrety., Port & Docks Office, Westmoreland St., Dublin.
,, 11	Northampton—Materials	Highway Committee	A. Fidler, Borough Engineer, Guildhall, Northampton.
Jan. 27	Capetown—Streets		Davis & Soper, 54 St. Mary Axe, E.C.
	SANITARY:		
Nov. 27	Basingstoke—Sewers	Works Committee	G. Fitton, Borough Surveyor, Town Hall, Basingstoke.
,, 27	Ebbw Vale, Mon.—Sewer, &c.	Urban District Council	T. J. Thomas, Town Surveyor, Ebbw Vale.
,, 27	Oughtibridge, near Sheffield—Sewerage Works.	Wortley R.D.C.	G. E. Beaumont, Engineer, Grenoside, near Sheffield.
,, 28	Pentre, Glamorgan—Scavenging	Rhondda U.D.C.	W. J. Jones, Engineer, Council Offices, Pentre, R.S.O., Glam.
,, 28	Warrington—Drain Pipes, &c.	Cheshire Lines Committee	S. S. Barton, Storekeeper, Cheshire Lines, Warrington.
,, 29	Reigate—Sewers, &c.	Rural District Council	J. Taylor, Sons & Crimp, 27 Great George Street, Westminster.
Dec 1	Plymouth—Sewers, &c.	Corporation	J. Mansergh & Sons, 5 Victoria Street, Westminster.
,, 1	Plymouth—Sewerage Works.	Corporation	J. Mansergh & Sons, 5 Victoria Street, Westminster.
,, 2	London, S.E.—Sewer Reconstruction	London County Council	Engineer, County Hall, Spring Gardens, S.W.
,, 7	Griffithstown, Wales—Sewers	Panteg U.D.C.	Surveyor, Sunny Bank, Griffithstown.
,, 15	Monte Video—Sanitary Works	Government of Uruguay	Uruguay Legation, London.
	TIMBER:		
Nov. 28	Hull—Hardwood Planks	Corporation	A. E. White, City Engineer, Town Hall, Hull.
,, 28	Warrington—Timber, Sleepers	Cheshire Lines Committee	S. S. Barton, Storekeeper, Cheshire Lines, Warrington.
,, 29	Swansea—Timber	Harbour Trustees	Engineer, Harbour Office, Swansea.
Dec. 2	Dublin—Timber	Midland Great Western Ray. Co.	General Stores Department, Broadstone Station, Dubiin.
,, 6	Dublin—Timber	Grand Canal Co.	G. Tough, General Manager, James's Street Harbour, Dublin.
,, 8	Aberaman, Aberdare—Timber, &c.	Powell Duffryn Coal Co., Ltd.	Stores Manager, Aberaman Offices, near Aberdare.
,, 8	Dublin—Timber, &c.	Tramways Co.	R. S. Tresilian, 9 Upper Sackville Street, Dublin.

List of Competitions Open.

DATE OF DELIVERY.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Nov. 29	Ramsgate—Technical Schools and Free Library	£50, £25, £15.	T. G. Taylor, Borough Surveyor, Albion House, Ramsgate.
,, 29	Arbroath—Golf Club House		W. Alexander, 62 High Street, Arbroath.
Dec. 1	Arundel, Sussex—Laying-out Land	£50, £20.	A. Holmes, Town Clerk, Arundel.
,, 1	Chadderton—Free Library		G. Taylor, Clerk to U.D.C., Town Hall, Chadderton.
,, 2	Holyhead—Schools and Teacher's House.		R. E. Pritchard, Clerk to School Board, Holyhead.
,, 8	Bristol—School	(Limited to Local Architects.)	W. A. Adams, Clerk to School Board, Guildhall, Bristol.
,, 12	Eccles—Laying-out Area for Workmen's Dwellings	£50, £30, £15.	W. H. Hickson, Town Clerk, Town Hall, Eccles.
,, 16	Surbiton—Clock Tower	£10 10s.	Dr. Coleman, District Council Offices, Surbiton.
,, 18	Durban, Natal—Town Hall, Library, Museum, &c.	£500, £300, £200.	W. H. Radford, Albion Chambers, King Street, Nottingham.
,, 31	Ashton-in-Makerfield—Infectious Diseases Hospital	Urban District Council	T. Burgess, Surveyor, Council Offices, Ashton-in-Makerfield.
Jan. 15	Kingston-on-Thames—Central Home and Cottage Homes for Children.	£25, £15, £10.	J. Edgell, Clerk to Guardians, Coombe Lane, Kingston-on-Thames.
,, 20	Workington—Public Library	£25, £15, £10.	W. L. Eaglesfield, Borough Surveyor, Workington.
,, 31	Cape Town—University Buildings	£400, £200, £100.	Agent-General for the Cape of Good Hope, London.
,, 31	Hull—Town Hall Extension	£300, £200, £100.	E. Laverack, Town Clerk, Town Hall, Hull.
Feb. 13	Patras, Greece—Church	£400, £160, £80.	Committee for new Church of St. Andrew, Patras, Greece.
,, 28	Bridgwater—Appliances for Silt Disposal.		W. T. Baker, Town Clerk, King Square, Bridgwater.
No date.	Burton Wood, Lancs—Church and Church Hall		Vicar of Burton Wood.

New Patents.

These patents are open to opposition until January 5th.

1901.—Sewage Distribution.—21,882. W. D. Scott-Moncrieff, 14, Victoria Street, London, S.W. The feeding channels are formed on the same level as the distributing channels, over the edges of which the sewage flows on to the filter bed. There is no loss of head by this arrangement.

Treatment of Clay for Bricks.—24,072. J. Burn, Longhill, Durham. This invention relates to clays which are too rich in lime and limestone for making good bricks. It consists essentially in pulverising the clay and then reducing the lime to a flux in a Hoffmann kiln, then adding coal or coke.

The following specifications will be published to-morrow, and will be open to opposition until January 12th. A summary of the more important of them will be given next week

The names in italics are those of communicators of inventions.

1901.—22,457. Hüppe, fastening pickaxes to their handles. 22,656, Baker, conveyor apparatus for cooling, drying or heating chamber. 22,923, Candy, apparatus for purification of sewage. 23,373, Doulton, closets. 23,046, Childs, elevators and conveyors. 24,369, Barr, trestle. 24,519, Norris, wood-working machinery. 24,840, Lake (*C. A. Schuppmann*), kilns. 24,894, Wright, Hobson, Carryer & Buswell, hoists, lifts, &c. 25,300, Haussen, roofings. 26,703, Loeser, kilns.

1902.—2,671, Clark (*Fellner & Ziegler*), manufacture of slag cement. 9,493, Meakin & Wrigley, window-fastener. 12,503, Yearsley, tilting scoop for cleansing trap-gulleys or sinks. 14,920, Weiss, locks and latches. 15,051, Appleyard, machines for covering strips of wood with metal. 16,938, Godeau, geyser. 17,149. Hughes, smoke- and spark-preventing devices. 17,495, Beckbissinger, filing cases for drawings, tracings, &c. 18,506, Lake (*Giussani*), apparatus for impregnating wood. 19,738, Lorie, sash-fasteners.

Engineering Notes.

Messrs. E. J. Raybould & Co., Ltd.—On p. xi of our last issue, in stating that this firm had opened a London office at 113, Finsbury Pavement, E.C., by a printers' error the name was spelt "Rayburn."

Lancaster New Vegetable Market.—Messrs. Andrew Handyside & Co., Ltd., of Derby, have secured the contract for the iron roof over the new Vegetable Market at Lancaster.

The Wellington Hospital, New Zealand, has been supplied by Messrs E. H. Shorland & Brother, of Manchester, with their double-fronted patent Manchester stoves, grates, exhaust roof ventilators and inlet tubes.

Tenders.

Information from accredited sources should be sent to "The Editor" at latest by noon on Monday if intended for publication in the following Wednesday's issue. Results of Tenders cannot be accepted unless they contain the name of the Architect or Surveyor for the work.

Addressed postcards on which lists of tenders may be stated will be sent post free on application to the Manager, BUILDERS' JOURNAL, *Effingham House, Arundel Street, Strand, W.C.*

Bexhill (Sussex).—For the construction of the whole of the works (except the foundations, ironwork and glass roof) in erection of a shelter-hall, lavatories and conveniences in Egerton Park Road, for the Bexhill Urban District Council. Mr. George Ball, A.M.I.C.E., surveyor:—

W. & E. Noakes, Eastbourne	£1,780 0
F. W. Parker, Bexhill	1,680 0
W. H. Bailey, Bexhill	1,659 10
T. W. Dexter,* Bexhill	1,514 0

Ironwork of roof, glazing, &c.

Howard & Co.	1,548 0
W. Jones & Sons	654 5
A. & J. Main & Co.	634 0
W. Bain & Co., Coatbridge	624 0
J. Every, Lewes	621 0
W. Whitford & Co.	514 0
E. C. & J Keay, Ltd.,* Birmingham	460 0

* Accepted.

Brentford.—For the erection of new Wesleyan schools and spire. Messrs. Nowell Parr & A. E. Kates, architects, Brentford:—

Schools.

Foster Brothers, Norwood Junction	£4,716
Stimpson, Chelsea	4,350
Brooking, Richmond	4,197
Hanson, Southall	4,133
Soole & Son, Richmond	4,120
Chamberlain Brothers, Hammersmith	3,992
Wisdom, Isleworth	3,975
Gaze & Sons, Kingston	3,893
Gough & Co., Hendon	3,794
Dorey & Co., Brentford	3,749

Spire.

Foster Brothers	1,458
Soole & Son	1,260
Gaze & Sons	1,249
Brooking	1,240
Hanson	1,162
Stimpson	1,162
Chamberlain Brothers	1,113
Wisdom	1,100
Gough & Co.	1,050
Dorey & Co.	1,000

[Architect's estimate, £3,800 and £1,000.]

Burton-on-Trent. — For the erection of business premises, Station Street, for Mr. B. Goodhead, Swadlincote. Mr. G. F. Underhill, architect, 206, Station Street, Burton-on-Trent:—

J. S. Varlow	£4,975	W. A. Stevenson	4,550
J. & C. Hunter	4,920	J. Harlow	4,472
G. Hodges	4,840	R. Kershaw	4,460
J. Maddocks	4,663	Lowe & Sons*	4,432
A. Geary	4,555		

* Accepted.

Coseley (near Bilston). — For carrying out the alterations and extensions of Lower Gornal Robert Street Infants' School, for the Sedgley School Board. Mr. A. Ramsell, architect, 187, Wolverhampton Street, Dudley:—

J. Herbert, Wolverhampton	£1,586 0 0
Hilton & Caswell, Sedgley, near Dudley	1,495 0 0
J. A. Meredith, Cradley, Staffs	1,457 0 0
R. Speke & Son, Wolverhampton	1,443 12 6
H. Gough, Dudley Road, Wolverhampton	1,420 0 0
C. Griffiths, Lye, near Stourbridge	1,400 0 0
Jakeman & Round, Dudley	1,386 6 3
E. Seckerson, Dudley	1,376 0 0
J. Guest & Sons, Brierley Hill	1,350 0 0
J. Dallow, Blackheath, Staffs	1,335 0 0
Oakley & Coulson,* Stafford Street, Dudley	1,299 0 0

* Accepted.

Handsworth (Staffs).—For granite and tar-paving at the sanitary depot, Queen's Head Road, Handsworth, for the Urban District Council:—

J. Smart, Westminster, S.W.	£2,120
Le Brea Asphalt Co., Ltd., Birmingham	1,784
G. Law, Kidderminster	1,777
Currall, Lewis & Martin, Birmingham	1,754
J. White, jun., Handsworth	1,768
J. Mackay, Smethwick	1,731
North of England Asphalt Co., Manchester	1,652
W. H. Jones, Birmingham	1,610
Fitzmaurice & Co., Browning Street, Birmingham	1,519
A. Ford, Birmingham	1,260

* Accepted.

Harrow-on-the-Hill.—For the making-up of all that part of the private street known as Hindes Road, for the Harrow-on-the-Hill Urban District Council. Mr. J. Percy Bennetts, engineer and surveyor:—

C. Ford, Harlesden	£2,370
Bracey & Clarke, Watford	1,935
T. Adams, Wood Green	1,906
T. Free, Maidenhead	1,901
E. W. Hollingsworth, Wealdstone	1,896
P. Saunders, Earl's Court	1,799
H. Brown,* Watford	1,745

* Accepted.

Ipswich.—For the erection of two shops, for Mr. Henry Sneezum. Mr. H. Winkworth, A.M.S.I., architect:—

J. Grimwood	£1,154
E. Haggar	1,100
H. Linzell	1,095
E. Catchpole	1,086
W. Grayston	1,060
Fred Bennett	990
T. Parkington & Son*	960

* Accepted.

Llangyfelach Mawr (Wales).—For the erection of additions to the Penclyn Schools, for the Llangyfelach Mawr School Board. Mr. W. David, architect, 97, Gorse Lane, Swansea:—

Lloyd Brothers, Swansea	£2,661 0 0
Thomas & Walters, Llangyfelach	1,860 0 0
H. Billings, Swansea	1,820 0 0
T. Richards, Swansea	1,820 0 0
D. Jenkins, Swansea	1,800 0 0
Walters & Johns, Morriston	1,780 0 0
J. C. Howells, Craigcefn Parc, Clydach	1,753 2 1

Leavesden (Herts).—For the erection of a new isolation hospital at Leavesden Asylum, for the Metropolitan Asylums Board:—

T. Boyce	£3,089 0 0
J. & C. Bowyer	2,570 0 0
J. & M. Patrick	2,531 0 0
A. Fairhead	2,470 4 3
H. Martin, Northampton	2,447 0 0
Gardner & Hazell	2,390 0 0
E. Wall	2,388 0 0
A. Kellett & Sons, Ltd.	2,360 7 11
C. Miskin & Sons, St. Albans	2,360 0 0
H. Brown, Watford	2,323 0 0
R. L. Tonge, Watford	2,300 0 0
Clark Brothers, Watford	2,296 0 0
Tyler & White, Watford	2,283 2 6
T. Cole	2,283 0 0
J. Honam & Son, Tring	2,263 0 0
G. & J. Waterman, Watford	2,250 0 0
E. H. Cripps	2,249 5 10
General Builders, Ltd.	2,247 0 0
F. Dupont & Co., Watford	2,232 0 0
C. Brightman, Watford	2,200 0 0
G. Wiggs,* 90 & 92, St. Alban's Road, Watford	2,189 0 0

* Accepted.

[Surveyor's revised estimate, £2,200.] [Rest of London.]

London.—For enlargement of Ivydale Road School, for the London School Board. Mr. T. J. Bailey, architect:—

W. Downs	£8,105
F. & H. F. Higgs	7,892
Martin, Wells & Co., Ltd.	7,794
W. J. Mitchell & Son	7,687
J. Greenwood	7,635
Holloway Brothers (London), Ltd.	7,518
Rice & Son	7,445
Lathey Brothers	7,197
Holliday & Greenwood, Ltd.	7,179
E. Lawrance & Sons	7,105
E. Triggs	7,073
J. Smith & Sons, Ltd.	6,921
J. & C. Bowyer*	6,696

* Recommended for acceptance.

London.—For works at Berger Road School, for the London School Board. Mr. T. J. Bailey, architect:—

J. Willmott & Sons	£2,429 0 0
G. Neal	2,376 10 0
Stevens Brothers	2,246 0 0
G. S. S. Williams & Son	2,231 0 0
R. P. Beattie	2,163 13 11
Johnson & Co.	2,151 10 0
J. Peattie	2,120 6 8
Durbin & Katesmark	2,108 0 0
F. Bull*	2,093 0 0

* Recommended for acceptance.

London.—For the erection of Telferscot Road School, for the London School Board. Mr. T. J. Bailey, architect:—

Lathey Brothers	£25,435
F. & H. F. Higgs	24,986
Martin, Wells & Co., Ltd.	24,772
Holloway Brothers (London), Limited	23,478
J. Simpson & Son	23,149
J. Garrett & Son	22,753
E. Lawrence & Sons	22,593
W. H. Lorden & Son	22,475
Spencer, Santo & Co., Ltd.	22,170
C. Cox	22,127
W. King & Son	22,115
Holliday & Greenwood, Ltd.	21,977
W. Downs	21,974
F. Gough & Co.	21,934
Stimpson & Co.	21,460
J. Carmichael	20,941
J. & M. Patrick	20,699
W. Johnson & Co., Ltd.*	20,578

* Recommended for acceptance.

London.—For enlargement of West Square School, for the London School Board. Mr. T. J. Bailey, architect:—

Martin, Wells & Co. Ltd.	£6,808	E. P. Bulled & Co.	£5,637
W. Smith & Son	6,268	Rice & Son	5,593
T. L. Green	6,238	T. D. Leng	5,579
W. Johnson & Co., Ltd.	6,180	Johnson & Co.	5,578
F. & H. F. Higgs	5,817	J. Garrett & Son	5,518
J. Greenwood	5,778	J. Marsland & Sons	5,444
J. Appleby	5,739	General Builders, Ltd.	5,305
W. Downs	5,639	E. Triggs*	5,266

* Recommended for aceeptance.

London, W.—For alterations to shop and offices, 113 Tottenham Court Road, W., for Messrs. Jealous and Saul. Mr. A. J. Perriam, architect & surveyor, 43 Cannon Street, E.C.:—

Gould & Brand	£1,199
Marchant & Hirst*	1,137

* Accepted.

Market Harborough.—For the execution of about 520 lineal yds. of 12in. stoneware pipe sewers and about 1,460 lineal yds. of 9in. stoneware pipe sewers, together with manholes, ventilators, drains, and other works in connection therewith, within the parish of Kibworth Beauchamp, for the Market Harborough Rural District Council. Mr. J. B. Everard, M.I.C.E., engineer, 6 Millstone Lane, Leicester:—

S. Saunders, London, S.W.	£2,889 15 2
R. Wood, Creswell, near Mansfield	1,781 0 0
W. Jones & Sons, Cambridge	1,698 0 0
A. Jewell, Market Harborough	1,633 12 6
C. Chamberlain, Leicester	1,479 0 0
T. Philbrick, Leicester	1,470 0 0
T. Smart, Nottingham	1,332 5 0
J. H. Smedley, Leicester	1,261 14 1
W. G. Wilmott, Rushden	1,260 0 0
J. T. Wingrove, Northampton	1,254 0 0
G. H. Eastwood, Market Harborough	1,212 19 3
J. Holme, Leicester	1,193 10 2

Parkeston (Essex).—For the erection of new schools for 510 children and alterations to present schools at Parkeston, Essex, for the Ramsey School Board. Mr. J. W. Start, architect, Colchester:—

W. Chambers, Colchester	£6,336
Dupont & Co., Colchester	6,190
F. Bennett, Ipswich	6,050
Wiles & Son, Haverhill, Suffolk	6,002
McKay, Clacton-on-Sea, Essex	5,540
A. W. Robins, Wanstead, N.E	5,510
Smith & Beaumont, Harwich, Essex	4,791
E. Saunders, Dovercourt, Essex	4,790
W. C. Theobald, Chappel, Essex*	4,637

* Accepted.

Poole.—For the making-up of the Alexandra Road, Upper Parkstone, under the Private Street Works Act, 1892. Mr. John Elford, borough surveyor:—

Grounds & Newton, Bournemouth	£1,394 0
T. Saunders, Bournemouth	1,385 0
W. P. Saunders, Bournemouth	1,360 0
T. C. Rigler, Poole	1,325 0
G. T. Budden, Upper Parkstone	1,233 3
H. C. Brixey,* Upper Parkstone	1,156 14

* Accepted.

Stockport.—For the manual and team labour and materials required in erection of an addition to the tram-car sheds at Mersey Square, for the Tramways Committee. Mr. John Atkinson, A.M.I.C.E., borough surveyor:—

W. B. Broadhurst, King Street, West	£1,475 0 0
D. Eadie, Clarendon Road	1,327 0 0
H. Bardsley, Booth Street	1,289 10 0
D. Mullaney, Heaton Lane	1,237 0 0
W. Pownall, Greek Street	1,213 16 10
J. Briggs, Canal Sawmills	1,186 0 0
T. & W. Meadows,* George's Road	1,177 0 0

* Accepted.

Trowbridge (Wilts).—For the construction of brick, stoneware, and cast-iron sewers, together with manholes, lampholes, storm-water overflow chambers, ventilating columns, and appurtenant works, for the Trowbridge Urban District Council. Mr. H. G. Nicholson-Lailey, C.E., town surveyor:—

G. G. Rayner, Croydon	£5,133 0 0
F. W. Trimm, Eastleigh	4,913 0 0
J. H. Ash, Devizes	4,774 3 0
T. Street, Bristol	4,768 10 1
S. Ambrose, Bath	4,692 13 2
A. Wills & Sons, Bath	4,600 0 0
Tryhorn & Sons, Salisbury	4,314 0 0
G. Bell, Tottenham	4,191 16 9
Binns & Sons, Croydon	4,180 12 10
E. Linzey, Trowbridge	4,034 13 0
S. Wood, Bradford-on-Avon	4,032 4 4
S. Saunders, London	3,962 0 0
H. Roberts, West Bromwich	3,822 18 9
J. Riley,* Gloucester Road, Cheltenham	3,383 17 3

* Accepted.

Westerfield, Ipswich.—For the erection of a house. Messrs. William Eade, F.R.I.B.A., and Edwin Thomas Johns, architects, Cornhill Chambers, Thoroughfare, Ipswich:—

C. Roper	£985 0
F. C. Thurman	923 3
M. Death	870 0
A. Sadler	860 0
W. H. Death	828 0
Parkington & Son	820 0
F. Bennett	815 0
H. J. Linzell	800 0
E. Catchpole*	744 0

* Accepted.

West Molesey.—For the construction in the parish of West Molesey, Surrey, of about 821 lineal yds. of cast-iron and stoneware pipe sewers, manholes, junctions, ventilators, branch drains, and other works connected therewith, and the maintenance thereof for six months after completion, for the Urban District Council. Mr. J. Stevenson, East Molesey, engineer:—

S. Kavanagh & Co., Surbiton Hill	£2,306 19 11
G. Bell, Tottenham	1,702 15 5
F. W. Trimm, Eastleigh	1,569 0 0
Free & Sons, Maidenhead	1,486 0 0
E. Potterton, East Molesey	1,471 6 6
E. Parry & Co.,* 125 High Street, Putney	1,229 15 7

[Engineer's estimate, £1,238 4s. 4d.]

* Accepted.

Woolwich.—For first portion of new cable factory at North Woolwich, for the Western Electric Company. Messrs. Ardron & Dawson, architect, 6 Old Queen Street, Westminster, S.W.:—

Mowlem & Co.	£23,159 0
Foster & Dicksee	22,844 0
Holloway Brothers	22,110 0
Holland & Hannen	21,705 0
Downs	21,229 0
Higgs & Hill	20,973 0
Lawrence & Sons	20,955 0
Lovatt & Roberts	20,500 0
Kirk & Randall	20,377 0
Holliday & Greenwood	20,377 0
Patman & Fotheringham	20,173 0
Chessum & Sons	19,997 0
Grover & Son*	19,734 0
Ironwork—Shaw & Co.	3,200 0
Pile driving—C. Newman	1,598 0
Fire-mains—Aiton & Co.	853 7

* Accepted, subject to reduction, at £18,402.

TENDERS—*cont.*

Ystradgynlais (Wales).—For the erection of a new mixed and infants' school (to accommodate about 400) at Ystradgynlais. Mr. Philip Williams, architect, Tyr Gorof, Ystradgynlais:—

T. Griffiths, Ystradgynlais	£3,775
D. Rees, Ystalyfera	3,732
E. Thomas, Seven Sisters, Neath	3,711

* Accepted.

Coming Events.

Wednesday, Nov. 26.

NORTHERN ARCHITECTURAL ASSOCIATION.—Council Meeting at 6.45 p.m. Mr. Frank Baker, F.G.S., on "Notes on the Old Rectory at Northfleet, a Typical Timbered House," 7.30 p.m.

SOCIETY OF ARTS.—Dr. Gustave Goegg on "Le Tunnel du Simplon," 8 p.m.

INSTITUTION OF CIVIL ENGINEERS.—Students' visit of inspection to conversion works on South London Tramways.

ARCHITECTURAL ASSOCIATION (Discussion Section).—Mr. George P. Bankart on "Decorative Plaster Work," 7.30 p.m.

SANITARY INSTITUTE (Lectures and Demonstrations for Sanitary Officers, Part II.).—Mr. W. Hunting on the Names and Situations of the Organs of the Body in Animals," 7 p.m.

INSTITUTE OF HOUSE AND ESTATE AGENTS.—Dinner at the Connaught Rooms, Trocadero Restaurant, 7 p.m.

Thursday, Nov. 27.

SOCIETY OF ANTIQUARIES OF LONDON.—Meeting at 8.30 p.m.

INSTITUTION OF ELECTRICAL ENGINEERS.—Sir Oliver Lodge on 'Electrons," 8 p.m.

ROYAL SOCIETY.—Ordinary meeting at 4.30 p.m.

Friday, Nov. 28.

SANITARY INSTITUTE (Lectures and Demonstrations for Sanitary Officers, Part II.).—Mr. W. Hunting on "Practical Methods of Stalling and Slaughtering Animals," 7 p.m.

GARDEN CITY ASSOCIATION.—Reception at Grafton Galleries, 8 p.m.

Saturday, Nov. 29.

GLASGOW AND WEST OF SCOTLAND TECHNICAL COLLEGE SCIENTIFIC SOCIETY.—Mr. James W. Peck, M.A., on "The Potentiometer," 7.30 p.m.

LIVERPOOL ARCHITECTURAL SOCIETY.—Visit to the New Technical Schools at Wigan (Messrs. Briggs & Wolstenholme, architects). Train leaves Lime Street at 1.55 p.m.

Monday, Dec. 1.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.—Business meeting.

SOCIETY OF ENGINEERS.—Ordinary meeting at 7.30 p.m.

LONDON INSTITUTION.—Prof. Silvanus P. Thompson, D.Sc., F.R.S., on "The Magic Mirror," 5 p.m.

SANITARY INSTITUTE (Lectures and Demonstrations for Sanitary Officers, Part II.).—Mr. James King on "Diseased Meat," 7 p.m.

LIVERPOOL ARCHITECTURAL SOCIETY.—Mr. Thomas H. Mawson on "Gardens," 6 30 p.m.

SOCIETY OF ARTS (Cantor Lecture).—Prof. Vivian B. Lewes on "The Future of Coal Gas and Allied Illuminants"—II., 8 p.m.

ROYAL PHILOSOPHICAL SOCIETY OF GLASGOW (ARCHITECTURAL SECTION).—Mr. A. B. McDonald, M.I.C.E., on "The Sewage-Disposal of Glasgow and Adjacent Burghs," 8 p.m.

ROYAL SOCIETY.—Anniversary dinner at Hotel Metropole, 7 p.m.

Tuesday, Dec. 2.

INSTITUTION OF CIVIL ENGINEERS.—Mr. Thomas Herbert Minshall on "High-Speed Electrical Generating Plant," 8 p.m.

Wednesday, Dec. 5.

SANITARY INSTITUTE (Lectures and Demonstrations for Sanitary Officers, Part II.).—Mr. E. Petronell Manby, M.D., on "Fresh Meat, Preserving and Storing," 7 p.m.

RUSKIN SOCIETY OF BIRMINGHAM.—Sir Oliver Lodge on "Some Unpublished Letters by Mr. Ruskin," 7.45 p.m.

SOCIETY OF ARTS.—Mr. Alfred Watkin on "Some Aspects of Photographic Development" 8 p.m.

NORTHERN ARCHITECTURAL ASSOCIATION.—Students' Evening.

Thursday, Dec. 4.

SANITARY INSTITUTE.—Inspection and Demonstration for Sanitary Officers at the Metropolitan Cattle Market, York Road, N., at 2 p.m., conducted by Mr. James King.

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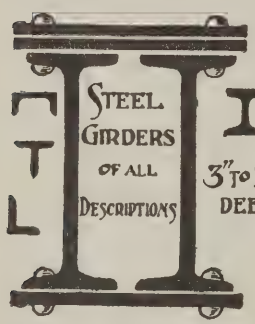
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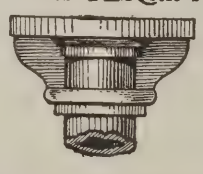
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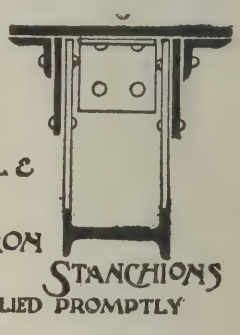


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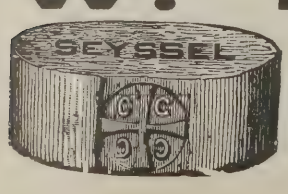
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Copperas	per ton	2	0	0		—	
Lard Oil	per cwt.	2	13	0	2	14	0
Lead, white, ground, carbonate	do.	1	4	10		—	
Do. red	do.	1	0	4½			
Linseed Oil, barrels	do.	1	3	3		—	
Petroleum, American	per gal.	0	0	5½	0	0	5⅝
Do. Russian	do.	0	0	4⅝	0	0	4⅝
Pitch	per barrel	0	7	0		—	
Shellac, orange	per cwt.	6	6	0		—	
Soda, crystals	per ton	3	2	6	3	5	0
Tallow, Home Melt	per cwt.	1	12	0	1	12	6
Tar, Stockholm	per barrel	1	1	6		—	
Turpentine	per cwt.	1	18	10½		—	

METALS.

Copper, sheet, strong	per ton	65	0	0		—	
Iron, Staffs., bar	do.	6	10	0	8	10	0
Do. Galvanised Corrugated sheet	do.	11	10	0	11	12	6
Lead, pig, Soft Foreign	do.	10	15	0	10	16	3
Do. do. English common brands	do.	11	0	0		—	
Do. sheet, English 3lb. per sq. ft. and upwards	do.	13	10	0		—	
Do. pipe	do.	14	0	0		—	
Nails, cut clasp, 3in. to 6in.	do.	9	5	0		—	
Do. floor brads	do.	9	0	0		—	
Steel, Staffs., Girders and Angles	per ton	5	15	0	6	5	0
Do. do. Mild bars	do.	6	10	0	7	0	0
Tin, Foreign	do.	113	10	0	114	0	0
Do. English ingots	do.	114	0	0	116	0	0
Zinc, sheets, Silesian	do.	24	0	0		—	
Do. do. Vieille Montaigne	do.	24	0	0		—	
Do. Spelter	do.	19	12	6	19	17	6

TIMBER.

Soft Woods.

Fir, Dantzic and Memel	per load	1	13	0	3	0	0
Pine, Quebec, Yellow	per load	5	5	0	6	5	0
Do. Pitch	do.	3	0	0	3	4	0
Laths, log, Dantzic	per fath.	4	10	0	5	10	0
Do. Petersburg	do.	8	10	0		—	
Deals, Archangel 2nd & 1st	per P. Std.	11	0	0	24	15	0
Do. do. 4th & 3rd	do.	10	5	0	15	10	0
Do. do. unsorted	do.	5	12	6	6	10	0
Do. Riga	do.	6	15	0	12	10	0
Do. Petersburg 1st Yellow	do.	16	10	0		—	
Deals, Petersburg 2nd Yell.	per P. Std.	9	0	0	17	0	0
Do. do. White	do.	7	5	0	11	10	0
Do. Swedish	do.	5	15	0	15	15	0
Do. White Sea	do.	12	15	0	15	5	0
Do. Quebec Pine, 1st	do.	17	15	0	18	5	0
Do. do. 2nd	do.	13	0	0		—	
Do. do. 3rd &c.	do.	10	15	0	12	15	0
Do. Canadian Spruce 1st	do.		—		12	0	10
Do. do. 3rd & 2nd	do.	7	10	0	10	10	0
Do. New Brunswick	do.	7	15	0	8	0	0
Battens, all kinds	Per P. Std.	6	10	0	16	0	0
Flooring Boards 1in. prepared, 1st	per square	0	9	9	0	11	6
Do. 2nd	do	0	7	9	0	11	3
Do. 3rd &c.	do	0	7	3	9	9	0

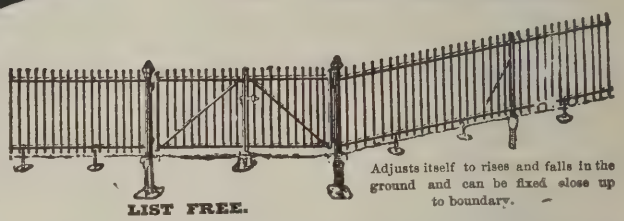
Hard Woods.

Ash, Quebec	per load	3	17	6	5	15	0
Birch, Quebec	do.	3	12	6	3	17	6
Box, Turkey	per ton	15	0	0	20	0	0
Cedar, Cuba	per ft. sup.	0	0	3¾	0	0	5
Do. Honduras	do.	0	0	4 9/32		—	
Do. Tobasco	do.	0	0	4 13/32		—	
Elm, Quebec	per load	4	0	0	5	2	6
Mahogany, Average Price for Cargo, Honduras	per ft. sup.	0	0	5 11/16		—	
Do. African	do.	0	0	3 7/16		—	
Do. St. Domingo	do.	0	0	3¼	0	0	6
Do. Tobasco	do.	0	0	4 3/32		—	
Do. Cuba	do.	0	0	4¼	0	0	8 7/16
Oak, Dantzic and Memel	per load	3	5	0	3	15	0
Do. Quebec	do.	4	12	6	7	15	0
Teak, Rangoon, planks	do.	16	0	0	17	10	0
Wainscot, Riga (Baulk)	do.	3	15	0	5	15	0
Walnut, Odessa Crown	do.	3	15	0	5	15	0
Do. American	per ft. cube	0	2	0		—	

The David Lewis Workmen's Hostel, Liverpool, is now nearing completion. The constructional steelwork, fireproof floors and roofs throughout have been executed by Messrs. Homan & Rodgers, Manchester. The fireproof floors to the Richmond-Cavendish Tobacco Factory, Liverpool, are also being carried out by the same firm.

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Dec. 3, 1902. No. 408.

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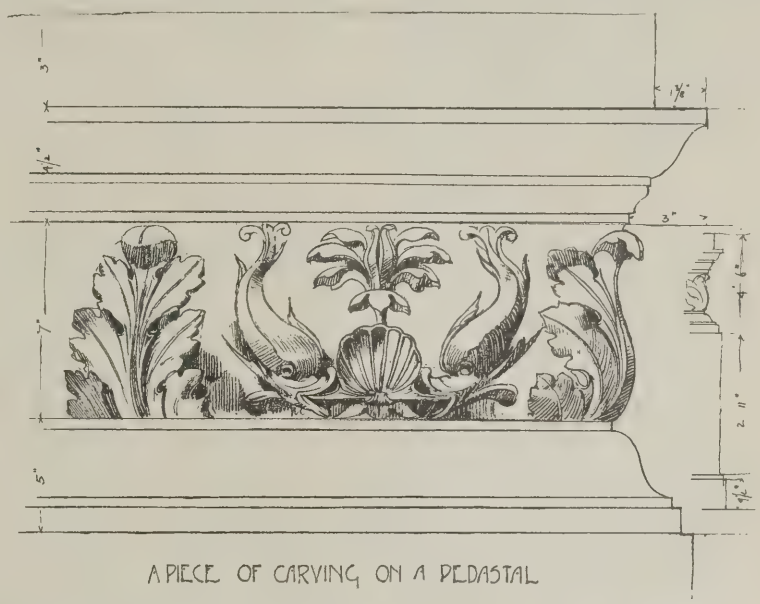
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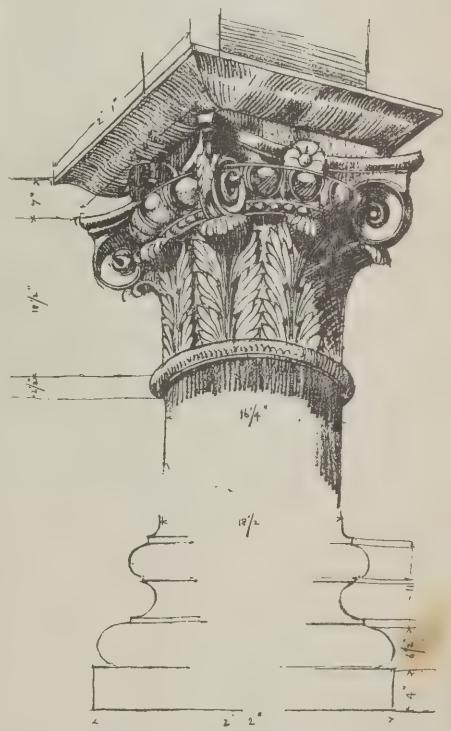
The new Gaiety Building. In the midst of the scaffolding around the new Gaiety Theatre, now being rapidly proceeded with in the Strand, passers-by may have seen what was apparently the first of the columns of the colonnade. This colonnade will consist of four coupled columns with a single column at each end, and, completing the upper part of the building on the Strand front, it will be a most important feature. The architects, Messrs. Ernest Runtz & Co., are evidently giving special attention to the matter, for the column and cornice to be seen amidst the scaffolding was a mere plaster dummy erected for the purpose of actually testing its proportion. This method is an excellent one, and might often be followed in important buildings: there is, of course, nothing new in it, but architects do not take advantage of the method as they might. The same kind of thing has been done with the New York Public Library, also in course of erection, from designs by Messrs. Carrère & Hastings, but there a whole bay has been erected—the unit of the long curtain wall which is to connect the centre pavilion with the end pavilions. An eminent architect was once addressed by a lay acquaintance: "With your experience I suppose you can tell beforehand just how your detail is going to look"; to which he replied, "On the contrary, I find myself deceived on that point all the time." As a general rule we cannot reach the ideal in anything—we have to be content with the best possible—and, so far as stone carving on buildings is concerned, the two distinct methods of executing the work *in situ* or in the stoneyard have both their merits and demerits: so that it has been suggested the ideal method would be for the carver to stand on the pavement, from where his work is seen, and cut it on the cornice! Some men have long arms, and monkeys longer, but the ideal method of carving is hardly yet possible. In the meantime this method of putting up dummy details is the best that could be devised, and we are glad to see it adopted for so important a building as the new Gaiety Theatre. While referring to this building we may mention a few facts gleaned from the recently-issued prospectus of the new Company. The London County Council agreed to pay the Gaiety proprietors £50,000 as compensation for disturbance and forcible removal. The debenture issue of the Company provides £60,000: so that they have £110,000 towards the cost of the building. Mr. Carmichael's contract is £65,540, the cost of the alterations made in the design by Mr. Norman Shaw (at the Council's request and expense) is put at £5,500, and the equipment is estimated at £30,000. This gives a total of £101,040 leaving the Company with practically £9,000 to the good. It will be noted that the London County Council gave the Company a subsidy of £5,500 to improve the building—a notable innovation—and this applies to the whole block, with the exception of about 32ft. on the frontage to the new curved street. These facts are particularly interesting.



A PIECE OF CARVING ON A PEDASTAL

Our Competition. EIGHTY-THREE designs have been sent in for our competition—the remodelling of the front of No. 182, Fleet Street, London. When it is remembered that in public competitions for town halls, libraries, &c., the average number of designs received is between forty and fifty, we think that our own competition has been excellently supported. The result will be announced in THE BUILDERS' JOURNAL for December 17th, when a full report, and the winning designs, will be published.

The Campanile. As soon as enough money is forthcoming, the rebuilding of St. Mark's Campanile at Venice will be commenced, but up to the present only half the required sum—£40,000 out of £80,000—has been received. Everything else is ready. All the debris has been sifted and sorted, and the plans for the reconstruction have been prepared under Commendatore Boni's supervision. It has been decided to rebuild from the foundations, which, too, are to be enlarged, the piling being of double its present area and the footings of the tower correspondingly increased. Such of the old materials as are uninjured will be used again, and the new Campanile will be a duplicate of that which has fallen, with the exception of the vault over the slope leading up to the belfry. The old vaulting, set with inferior cement, doubtless exercised considerable thrusts on the walls and hastened the collapse. Iron girders are therefore to be used instead, and with so competent an engineer as Boni in charge of the work we may be sure that the construction will be properly done.



GONDI PALACE, FLORENCE.
DRAWN BY H. RAINE.

Two Sketches. THE sketches on this page by Mr. H. Raine show a portion of an enriched moulded band forming a small frieze to a pedestal supporting an ancient Roman statue, and one of the capitals from the open court or entrance hall of the Gondi Palace of Florence. Where the arches spring directly from the capitals the double abacus is often used and with very good effect.

WILLIAM MORRIS'S HOUSE.

THE houses of several great artists have been put up for sale by public auction this year. Turner's "Sandycombe Lodge," Constable's "Flatford Mill," Willy Lott's house, Hogarth's house at Chiswick, and the London residences of Millais and Mr. Alfred Gilbert have been successively mentioned in this connection, and now it is announced that Romney's house in Cumberland and "The Red House," Bexley, are to be offered for sale this month. The latter was William Morris's, designed for him by Philip Webb. He had long cherised the idea of building an ideal home for himself, and this he did when, in 1859, he discovered a site at Upton, near Bexley Heath—an orchard amid "the rose-hung lanes of woody Kent." "The house," says Morris's biographer, Mr. J. W. Mackail, "was to be a proving piece. In it the theories of its owner and its architect on domestic building and decoration were to be worked out in practice." Philip Webb, though in effect its architect, carried out Morris's directions, more particularly in the design of its interior fittings. Being one of the first of the Brick Revival houses, it was appropriately termed "The Red House."

Morris's views on architecture are set forth in a paper he contributed to the "Fortnightly Review" in May, 1888. "The revival of the art of architecture in Great Britain may be said to have been a natural consequence of the rise of the romantic school in literature, although it lagged some way behind it. . . . Up to a period long after the death of Shelley and Keats and Scott, architecture could do nothing but produce on the one hand pedantic imitations of classical architecture of the most revolting ugliness, and ridiculous travesties of Gothic buildings, not quite so ugly, but meaner and sillier; and, on the other hand, the utilitarian brick-box with a slate lid which the Anglo-Saxon generally in modern times considers as a good sensible house with no nonsense about it." And then he goes on to speak of the revolutionary teaching of John Ruskin, who "attained at one leap to a true conception of mediæval art, which years of minute study had not gained for others." Morris, like Ruskin, became deeply conscious of the difference between the conditions of our modern social and industrial system and those of former days, and it was at the Red House so much was done towards improving these conditions.



"THE RED HOUSE," BEXLEY HEATH.

The following account of the house is given in Mr. Aymer Vallance's record:—

Upon entering the porch, the hall appeared to one accustomed to the narrow ugliness of the usual middle-class dwelling of those days as being grand and severely simple. A solid oak table with trestle-like legs stood in the middle of the red-tiled floor, while a fireplace gave a hospitable look to the hall place. To the left, close to the foot of the stairs, is a screen with leaded panes of glass that divides the main hall from the lesser hall or corridor. To the right is a press or cupboard with a seat below (on the outside of its two doors are figure compositions begun in oils, but not finished; inside are some experiments in diapering in black on a gold ground, by Morris) and beyond this press is the dining-room. Its fireplace is of brick and stands out from the middle of the wall, and, like the rest of the fireplaces in the house, is without a mantelshelf, the chimney-breast going straight up to within a short distance of the ceiling. The furniture included a wide dresser ornamented richly with painted decoration, a movable settle with high back and leather panels, and plain black chairs with cane seats ("the revival of this form of chair is due to Morris's example"). The walls were tinted with distemper and the ceiling ornamented by hand in yellow on white, the pattern being pricked upon the plaster and afterwards filled in with distemper. Opposite the front door is the wide oaken staircase, the underpart left open, not boxed in. Upstairs above the dining-room is the drawing-room with a decorated open roof and, as a chief piece of furniture, a great painted bookcase or cabinet, with a ladder stairway reaching to the top of it, where one could sit; while thence another ladder led into a storage-loft in the roof. The walls of the principal bedroom were hung with embroidered serge and here also was a decorated wardrobe—a wedding present from Burne-Jones, who, while on a visit to the Red House, in 1860, commenced a series of paintings in tempera on the end wall of the drawing-room. Rossetti also executed a panel.

Morris occupied the Red House for six years. He then gave it up and came back to live in London (in 1865).

In the grass plot at the back of the house is a covered well with a quaint conical roof (shown in the illustration on this page, for which we are indebted to Messrs. Hampton & Sons, the auctioneers who will put up the house for sale at Tokenhouse Yard on December 8th).

PROSPER MERIMÉE AND RESTORATION IN FRANCE.

By F. H. CHEETHAM.

IN a paper read before the Architectural Association on "The Preservation of Ancient Buildings" in April last Mr. W. D. Caröe had something to say, as was almost inevitable in dealing with such a subject, on restoration in France during the nineteenth century, and in particular with the part played in that work by Viollet-le-Duc. A great deal has been written in England from time to time concerning French restoration, and always in its utter condemnation. Of late years not a few writers have come to castigate our English restoration of the Gothic revival in terms almost as scathing, if differently expressed, as they had formerly used concerning the work in France. We are told that Sir Gilbert Scott's great and deserved reputation was "plunged into the dust" by his attempt to reconstruct the past rather than to preserve it. This may or may not be the case. It is not my intention to discuss once more in this place the vexed question of Restoration. But this much may be said: that it is one thing to discuss and lay down theories, and quite another to restore an ancient building. There are perhaps as many theories of the true art of restoration as there are thinkers on the subject, and even then the exceptions to the rules you have laid down for yourself are so many that when you come to tackle the problem in stone you may be inclined to put all rules to one side and treat each case according to the peculiar exigencies of place and circumstance. Sir Gilbert Scott, in the ninth chapter of his Recollections, has left us in a few pages a very complete exposition of his views on the Restoration question. This chapter should be digested by all who are apt to pass a too ready condemnation on Scott's work. The man was justified in his own eyes. The blame, if blame there be, should perhaps be put rather on the shoulders of those who employed him, and in that case it would be shared by not a few deans and chapters and parish priests.

But in France, if such blame is to be taken off the shoulders of Viollet-le-Duc and his brother architects, there is not the same difficulty in allotting it. Though the romantic movement in France produced no revival of building in the Gothic style, it gave an immense impetus to the study of mediæval art and awakened the country to an appreciation of the thousand-and-one Gothic buildings scattered over the land. In 1837 was formed the Commission on Historic Monuments, presided over by the Minister of Fine Arts. This Commission appointed an inspector-general whose duty it was to travel up and down the country examining all such structures as come under the style and title of Historic Monuments. As is well known, the ancient churches and cathedrals of France come under this designation and are kept in repair by the Government. The inspector's report was not necessarily adopted, but his advice was always listened to and generally followed. So that in allotting blame for "restoration" in France we should not go far wrong to put it largely upon the shoulders of the Inspector-General of Historic Monuments, shared, of course, in a large degree by the Commission and its president, the Minister of Fine Arts. While taking his share, therefore, as architect, that share must, I think, be held smaller in the case of Viollet-le-Duc than that given in England to Sir Gilbert Scott, for in England Scott alone must be held responsible for the part which in France was played by both the Inspector-General and the architect. But the analogy is in reality not a close one, and is difficult to follow.

Now the first Inspector-General of Historic Monuments appointed by the Commission in 1837 was no less a person than Prosper Merimée. Merimée is known in England almost entirely as the author of "Carmen," "Colomba," and some other short stories. But he was something more than a writer, and it may be questioned whether he has not left his mark as effectively on the course and current of his country's art as ever he did on that of its literature. Merimée held the post of Inspector-General of Historic Monuments for something like twenty years. The two decades succeeding the establishment of the Commission witnessed a vast revival of archæological and building activity in France.

To those of us who are inclined to condemn too hastily this French method of "recovering the supposed form of a building" at some precise period of its existence "pedantically elected to be the most beautiful or the most interesting," it will not be without advantage to know something about the ways and means of Prosper Merimée when Inspector-General of Historic Monuments. To help us to do this we may turn to a book published about eight years ago, entitled "Merimée et ses Amis," by M. Augustin Filon. M. Filon, who is a very able critic and well known in England, has devoted a not inconsiderable portion of one of his chapters to this less known and official side of Merimée's career, and pointedly asks the question, Was Merimée a good Inspector of Historic Monuments? "When I first asked myself this question," says M. Filon, "I hesitated to reply. To-day, after hearing the evidence of witnesses whose authority to speak on the subject is incontestable, I reply with certainty, 'Yes, Merimée was a good, even a great inspector of monuments; he was, indeed, the typical inspector, an initiator and master for those who followed him.' Indeed, I have sometimes asked myself whether the whole of his literary work can weigh against his unique services to art."

This sounds like exaggeration, and is only explained by our realizing that the qualifications of an architect and of an inspector are something different.

Merimée had grown up among artists; his father and mother were artists, and he lived in the society of sculptors and painters. He was fond of sketching, and was early attracted to the study of architecture. He seems to have realized from the first that sculpture and painting should be subordinated to architecture, which had given them birth, but he approached these questions from the historical rather than from the philosophical standpoint. He was a savant, who judged an art almost entirely according to technical rules. The poetic side of architecture to him was simply non-existent, and therein was both his strength and weakness as an inspector of monuments. His reports are described as "critical architectural essays," embodying a vast amount of special knowledge which a critic writing for the public rather than for a Minister would find it impossible to use in such a way. Merimée started with this special knowledge, and during twenty years he perfected it by patient and continual study. "This method, however," says M. Filon, "has its faults as well as its advantages. It does not explain everything. Merimée spoke learnedly about stylobates, archivolts, voussoirs, mullions and modillions, but he never thought of seeking for the soul of Gothic architecture. He traced well enough what it owed to Greek and Byzantine sources, but he never stopped to enquire what it owed to religion." He saw clearly enough that the pointed arch was not, as was generally supposed, the real characteristic of Gothic architecture. Its characteristics were more general, and the chief of them he found in the lightness of mediæval buildings as compared with the solid massiveness of the preceding Romano-Byzantine style. But, while admiring this quality in itself, he seems to have entirely missed its meaning. To Merimée the architects of the thirteenth century built merely with no other object than that of "forcing admiration from the spectator." "He did not see," says his biographer and critic, "that the substitution of vertical for horizontal lines announced a new civilization. The horizontal line is positive, the vertical idealistic; one reasons, the other prays . . . The rich poetry and symbolism of Gothic architecture Merimée either could not see or refused to admire." Thus, while he admired the lightness of the Gothic style, he speaks of the "hideous" buttresses which are necessary on the outside of so many buildings in order to keep the walls standing. To suggest that a buttress might in itself be a feature of beauty we are told "made him angry." And when his friend M. du Sommerard spoke of the "aerial fabric" of a cathedral, he only laughed. Merimée himself could only regard the towers and spires of tbe mediæval builders as "menacing" heaven.

All this sounds but poor equipment for one into whose hands the fortunes of the historic monuments of France were largely to fall, and so, indeed, M. Filon would appear to feel it. "It would be a strange, almost a sad spectacle," he says, "to see Merimée wandering for so long a period of his life beneath the vaults of our old Gothic cathedrals without ever understanding them, if we did not remember that no one has so religiously, so passionately and so victoriously defended them against their enemies." We must remember the time and place in which Merimée lived before allowing ourselves to judge him too adversely. All things considered, it seems probable that he was the best man for the position at the time. "If Victor Hugo had not written 'Notre-Dame de Paris,' and if Merimée had not instigated the formation of the Comission on Historic Monuments," wrote Philippe Burty, "all our old buildings would have been pulled down to make way for Madeleines and Bourses." That was the danger that threatened France. It was a matter not so much in those days of understanding the Gothic cathedrals as of saving them, and that is what Prosper Merimée did. He was an enthusiastic antiquary, if so warm a word as "enthusiastic" can be used of so cold a man as the author of "Carmen," and it was largely owing to his exertions that the Commission on Historic Monuments owed its existence. He was secretary of the Commission as well as inspector-general, and we have the word of his successor that Merimée acquired a preponderating influence in the work of the Commission. His counsels were accepted, his reports followed, both in regard to moneys to be spent, work done or architects appointed.

In his reports and letters Merimée has left record of the many difficulties he had to contend with in his work. His enemies were "ignorance, bad taste, cupidity, and religious and irreligious fanaticism and zeal." Local archæology was hardly born. When the curé did not whitewash the church the commune would take it in hand. Merimée is happy to find one curé who had energetically struggled against the municipal council to "preserve the noble covering that nature had given" to the walls of his church. This curé had actually shut up the church and suspended the mass in order to gain his point. He had furthermore taken a religious care of the carved woodwork in the sacristy, dusting and oiling it. Merimée expresses himself delighted with a priest who thinks more of taking care of his carvings than of saying mass, and recommends the Minister to send a present of a picture to this admirable cleric!

In the Palace of the Popes at Avignon he found that the soldiers quartered there cut pieces out of the old frescoes with their knives and sold them to amateurs.

At Charité-sur-Loire two locksmiths had built their shops right against the walls of an old church. Merimée tells the story that some months before he passed that way a soldier, who had been billeted on one of these men, had been prevented from sleeping because of the insects that insisted on sharing his bed with him. Over the bed stood, on what was really the outside wall of the church, a carved figure of the Eternal Father surrounded by His angels. The soldier rising in a rage had seen the figure and vented his wrath upon it. "C'est toi," he cried, "qui es l'auteur des punaises. Tiens! Voilà pour toi," and with one blow of his stick he smashed the figure in pieces.

Merimée was more in sympathy with Pagan than with Christian art. Some of his reports on Roman monuments are said to be models of technical and direct criticism. It is difficult to determine the exact part Merimée played in this work of restoration, and what is directly owing to his particular initiative. His pupil and successor, M. Emile Bœswillwald, gives him the individual credit for the restoration of the theatre at Orange, the theatre at Arles, the church of S. Julien at Tours, and above all Laon Cathedral, the restoration of which was undertaken at the close of an archæological tour made by Merimée with the Minister of the Interior in 1851. The work was begun two years later, and has proceeded for over forty years. Together with Montalembert, Merimée shares the merit of having preserved from destruction the church of Vezelay, restored by Viollet-le-Duc.

The greater number of Merimée's writings on architecture have not been reprinted in his collected works. They are largely reports written in his official capacity, and critical articles in magazines and newspapers. All his reports to the Commission were, however, reprinted at the time of the Vienna Exhibition in 1876 in a volume entitled "Les Monuments historiques de France à l'Exposition de Vienne," by M. E. du Sommerard. The volume, however, was not for sale, and is therefore rare. Those of Merimée's architectural writings which are still in print are included in the twentieth volume of his collected works, "Etudes sur les arts au moyen-age." The archæologist and antiquary show themselves, however, in many of his masterly short stories.

Merimée was one of the few Frenchmen of the last century who really knew England well and who felt himself in sympathy with things English. He often visited London, and his correspondence with Panizzi, the librarian of the British Museum, has been published. He visited the Manchester Art Treasures Exhibition in 1857, and was a member of the jury of the Exhibition of 1862.

The connection of Prosper Merimée with the ancient architecture of France has been very little noticed. It is as a man of letters that Merimée is almost wholly known to the public. But he was an artist in something more than words. The artist in him, it is true, was curbed and restrained by the colder spirit of the savant, but it was precisely that combination of qualities that so well fitted him for the official post he occupied. He was a man who knew his own limitations, and he never went beyond them unless forced to do so by the nature of his position. His great merit is that he "saved the cathedrals of France from being pulled down to make way for Madeleines and Bourses." And those of us who decline to see in French restoration anything more than a recovering of the supposed form of a building at some one particular period of its existence will be forced to admit that even that is better than the disappearance of the building altogether.

ANCIENT IRISH MONUMENTS.

How they have been Repaired.

IN the seventeenth annual report of the Commissioners of Public Works in Ireland (recently published as a Blue-book, price 10d.) an account is given of the works of reparation (removal of ivy, repointing with cement, &c.) done to the following buildings during the past year:—Ennis Abbey (Co. Clare), Drumlane Church and Round Tower (Co. Cavan), Moyne Abbey (Co. Mayo), Ross-Errilly (Co. Galway), Dysert O'Dea (Co. Clare), St. Cronan's Church, Roscrea (Co. Tipperary), Glendalough (Co. Wicklow), Holycross Abbey, Newtown (Trim), St. Columba's House (Kells), Rock of Cashel, Monasterboice (Co. Louth), Sligo Abbey, Lusk Round Tower, Feenagh Abbey (Co. Leitrim), Maghera Church (Co. Londonderry), Clones Church and Round Tower, Ardmore Cathedral (Co. Waterford).

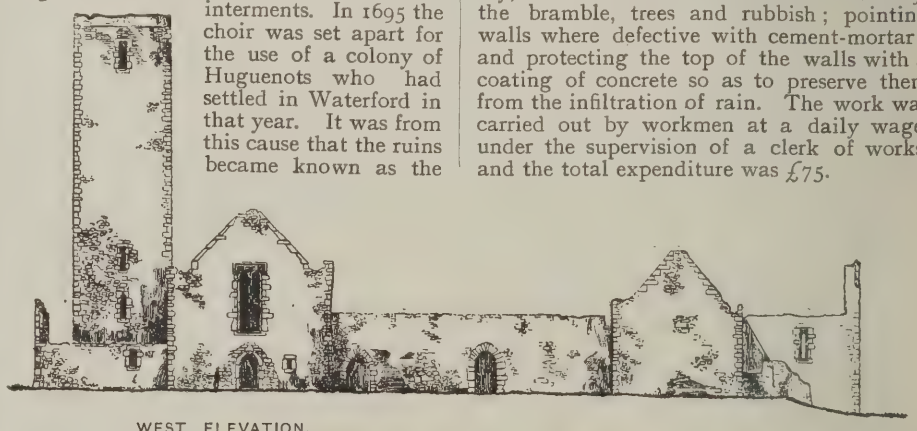
The Franciscan Convent (Waterford) and Canon's Island Abbey (Co. Clare) deserve special notice.

French Church, Waterford.—This structure dates back to 1240, when a convent was founded which was probably the seat of one of the first establishments of the Friars Minors or Franciscans in Ireland. In 1545, after the Friars had been dispossessed and almshouses established, a second storey was built over the nave of the church, and the ground floor of the latter was used for interments. In 1695 the choir was set apart for the use of a colony of Huguenots who had settled in Waterford in that year. It was from this cause that the ruins became known as the "French Church." The existing ruins comprise nave, tower, transept, choir—all roofless except the tower and transept. The style of work is Early English of the thirteenth century, with later additions of the fifteenth century.

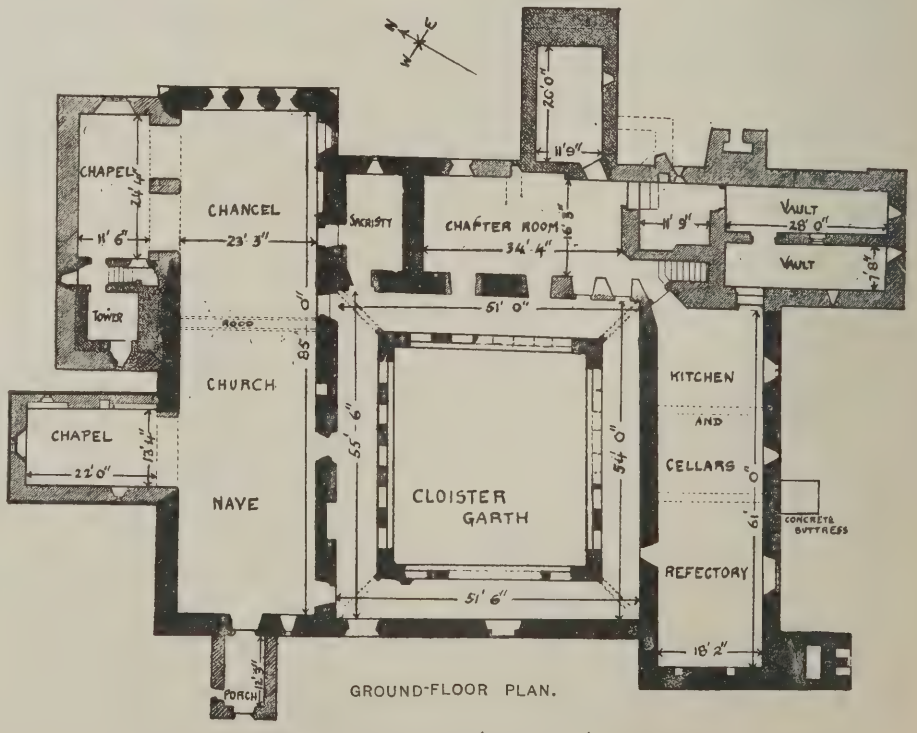
Canon's Island Abbey (Co. Clare).—This structure was taken in hand and repaired during the past summer. It is a rather extensive ruin of a church and conventual buildings which formerly belonged to the Augustinian order: its foundation is ascribed to the last King of Munster, Donald Mor O'Brien, in the twelfth century. The buildings occupy a site on the northern portion of a small island three miles in a direct line north-east of Killadysert.

The existing remains consist of a church with tower and chancel and an aisle or side chapel, and transept, all at the north side (see plan on this page). The cloister garth, around which are grouped the usual conventual buildings, is on the south side.

Some years ago all the cut stonework of the east window and the quoins of the gable, and all other cut stonework easily accessible, were taken out and removed to the mainland for building a new church. This leaves the most interesting parts of the structure wanting in detail, and in the work of conservation, just executed, the gaps left by this gutting have been filled in with cement-concrete (without any mouldings or carvings) where it was necessary to secure the stability of the walls. The other work done consisted chiefly in clearing the walls of the dangerous ivy, and the interior of the fallen masonry, the bramble, trees and rubbish; pointing walls where defective with cement-mortar; and protecting the top of the walls with a coating of concrete so as to preserve them from the infiltration of rain. The work was carried out by workmen at a daily wage, under the supervision of a clerk of works, and the total expenditure was £75.



WEST ELEVATION.



GROUND-FLOOR PLAN.

CANON'S ISLAND ABBEY (CO. CLARE), IRELAND.

CONTINENTAL NEWS AND OPINIONS.

[The following extracts have been translated for The Builders' Journal from the German, Austrian, French, Spanish, Italian and Russian press. We do not necessarily approve the opinions expressed, which are simply given to show what views are held on the Continent in regard to architecture.—Ed. B.J.]

The New Hungarian Parliament House.

The "Berliner Tageblatt," describing this new building, says that in 1880 it was decided to build a new House regardless of expense. The preliminaries occupied about five years, and then the Polytechnic professor, Emerich Steindel, began the work (he died at Budapest on August 31st last). The building operations lasted seventeen years, and the cost, which was estimated at 25,000,000 crowns, rose to 40,000,000 crowns (about £1,600,000)—an increase that was much resented by the public. The Gothic style having been selected, the question of light soon became troublesome. The Gothic had to be adapted, and Professor Steindel, who, says the "Berliner Tageblatt," was a very learned man but no creative genius, started borrowing from other styles so as to get the necessary light. He put on French roofs, and in the façade he cut a number of wide windows whose tops, instead of being pointed, were square; so that not only the professional eye but the eye of the layman is offended: moreover, the idea of grandeur is absent in spite of the immense dimensions of the building. The House is about 900ft. long, and its greatest width 410ft.

New Lime Sand Bricks in Berlin.

The use of lime sand bricks in Berlin has made great progress, and the quantities of these bricks turned out do not suffice to satisfy the demand, although one brickworks alone makes 140,000 bricks a day.

Architectural Education in Germany.

Bruno Möhring in the "Berliner Kunst" says that dilettantism is the greatest present-day enemy of architecture. It suffocates inspiration in the germ, and destroys vigour, love and joy of work. Its presence turns wine to water, granite to mud, energy into indolence, daring into anxiety, modesty into rivalry. "The bright periods of architecture have always come from masters who had passed through practical experience, not from men mechanically educated. Our high school aims only at educating good building officials, who must prove themselves in a series of examinations to understand building, art history and theory, &c., while, secondarily, they may be architects. Few young architects look on their profession from any point of view other than a means of living, because they are driven by want from other overcrowded professions. But they soon discover their mistake. The long preparation and series of tests at the high school on matters of theory, &c., leave them no time to see into the garden of art. Happy for a student if he has not an uncongenial task, as once happened to a strong Anti-Semite (O trick of fate!) who got for a subject a synagogue in the round arch style, and which went so much against his grain as to cost him months of agony. He must work out his problems, according to rule, after the taste of his masters. He must suppress his own tendencies so that his work may not be rejected."

Arnold Noldeke in the "Berliner Architekturwelt" takes the same line as Bruno Möhring on the subject of the system of educating the architect in Germany as it obtains at the high school. He says that in every respect the present method of teaching is unnatural in its requirements and inorganic in its method. To reproduce in a single man the architectural development of several thousand years is a monstrosity. On this account the method of the technical high schools is no longer tenable, for the State can no longer support the idea that the object of the architect should be to produce a Roman, Gothic or Renaissance edifice at command. Whilst the old watchword was to build to style, the new one should be to build in harmony with a style, and so on he continues, like Möhring, condemning the modern German high school.

A Public-Spirited Spanish Corporation.

The Barcelona Town Council on June 23rd, 1899, decided to award annually a diploma to the building (private or public) most generally admired that had been constructed during the previous year. Since the award was instituted the Council has been carefully advised each year by an expert jury.

An Italian View of "Style."

The "Italia" complains that there is no originality in contemporary architecture or art. "We have no style." All is borrowed or adapted from the past styles, which were once young but are now no longer so. Pursuing its enquiry into the decorative arts in the interiors of houses it arrives at the same conclusion; proceeding even to find fault with the drafts on antiquity made to embellish bank-notes and exhibition diplomas. It traces the art impotency of the generation to the abundance of material luxury to-day and its consequent contentment. Quoting Wagner, who said, "He who from the cradle has not the gift of discontent with everything will produce nothing new," it expects the United States to produce the new art creation, saying the American race is coarse and inartistic because it is in its period of struggle.

America to Produce the Coming Style.

"Then the modern conditions cannot have a style? Certainly they can and will; but not yet, and that style will probably not originate with those old peoples who are saturated with historiography, &c., but rather with that portion of the human race which is less dyed with vicious eclecticism. There has been till now but one country where a poet has had the courage to cry to the Muses to 'come to a larger empire than Germany, France and Italy, and we will raise a temple grander than those of Greece and Rome, more majestic than the cathedral of Milan.' Boasting, do you say? It will be. When I look at the fine portraits that adorn the American dollar notes, when I consider the novelty that characterises American printing type, the ingenious forms of their machines, the suitable shape of American furniture, I am persuaded that only the countrymen of Walt Whitman will have the courage to throw off the whole range of old forms and the energy to create new ones. Give them fifty years for riches and ease to corrupt them and prepare the germination of art, and from these you will see the new decorative art, and not that only."

Cologne's New Municipal Theatre.

This theatre, says the "Deutsches Volksblatt," is an addition to the architectural beauties of the city. The interior is luxurious, and the pit of the auditorium has four tiers of seats, the last on the plane which takes the place of the gallery. The house is built to hold 1,850 persons. The town granted three and a half millions of marks in 1899 for its construction. But the estimates were surpassed by five million marks! The architect, K. Moritz, was warmly congratulated on the opening day on the heating and acoustics of the building, as defects in these two respects had spoiled many an evening in the old theatre.

The Spaniards as Builders.

A writer on "La Construccion Moderna" in Barcelona claims for that city that, like Berlin, it has attained the highest point of excellence in the material employed in its buildings, and the skill applied to them by both contractors and masons. The writer of the article says that Barcelona has become the centre of peninsular art, as it had already become the centre of peninsular industry.

Duvigneu de Lanneau School, Paris.

This school has been transferred from the Rue de Rennes to its new home in the Boulevard Péreire. It serves to prepare scholars for the Central Schools for Arts and Manufactures. The building offers some interesting features from the builder's point of view. It is an imposing structure, with a façade of 260ft. on the boulevard. It is built entirely of Vaugirard brick. The piles, which rest on concrete, are connected by walls about 8in. thick. The floors are made with double T joists. The progress of construction was rapid, lasting only from February to October last year between cutting the sod and occupation by the scholars. The house (contents, 12,850 cubic metres) is efficiently heated—322,200 heat units per hour are produced by two boilers of the "Field" type. A two-cylinder 30-h.p. gas-engine drives the dynamo that provides the electric light ("Gènie Civil").

Marble in German South-West Africa.

The German "Colonialblatt" reports that the marble deposit recently discovered on the Etusi farm in German South-West Africa is of a very fine grain, bright and white. Over the whole extent of the farm the grain and colour do not change. Not far away black veins are found in it, which will probably make it a valuable building marble. Those parts that have been exposed have not flaked.

Gathering the Arts Together.

The Union for the Industrial Arts has been founded in Berlin to gather the interests of art together so as to have a corporate influence in economic politics.

The Munich Public Baths.

We read in the "Zeitschrift fur Bauwesen" a full description of these baths. They are situated near the Ludwigsbrucke, and cost 1,675,000 marks (£67,000). The building occupies an area of about 4,000 sq. metres, and the men's swimming bath is 30 metres long by 12¼ metres wide. The bottom is of concrete covered with unglazed blue tiles. The sides are formed with glazed blue tiles, with a margin along the top in glazed white tiles. All the appointments are excellent, and apparently fitted regardless of expense.

St. Petersburg Trams.

On November 13th the term expired for receiving offers to transform the traction from horse to electric on three of the St. Petersburg tramway lines. There were no tenders! The "Novoe Vremya" says that certain contractors had asked for an extension, but this had not been granted. The Municipal Council appears unmoved by the abstention of the contractors, perhaps because it is desirous of carrying out the scheme itself.

Competition for Liege Exhibition Buildings, 1905.

The Exhibition Committee, whose offices are at No. 14, Quai de l'Université, Liege, will receive up till December 31st this year designs for the decorative façades of the exhibition halls to be erected, as well as the construction of a sundries' hall. For the former there are four prizes of 4,000, 1,500, 500 and 250 francs respectively, and for the latter six prizes varying from 5,000 to 250 francs.

B

Views and Reviews.

An Important Book on Surveying.*

Of the many specialised branches of engineering few have so complete a literature as surveying; yet hitherto the books have generally dealt either with the elements only or with particular sections of the work such as may have come within the special experience of the author. It is accordingly a pleasure to welcome a comprehensive work such as this. Commencing with plane surveying (with the chain only and with the theodolite), levelling, and the adjustment of instruments, all or most of which is to be found in good modern books on the subject, the author proceeds to explain and discuss railway and road surveying, stadia surveying, tunnel alignment and setting out, surveying for waterworks, hydrographical surveying, astronomical observations, exploration surveys and geodetic surveys In spite of the great scope of the book, however, it has been written in no perfunctory spirit. Everything is explained thoroughly and intelligibly in a perfectly rational sequence, giving a sense of completeness without the use of an unnecessary word or phrase, thus approaching very closely to the ideal of technical writing.

Many recent books on surveying have contained digressions, short or long, upon the subject of trigonometry. Mr. Whitelaw has not fallen into this error. He uses trigonometry where necessary, both plane and spherical, but he has very reasonably considered that plane trigonometry at least is understood by his readers, though he goes out of his way to give the ordinary spherical trigonometry formulæ required for the proper working-out of astronomical problems. This seems to be rational, and is in consonance with the general thoroughness of the book. Of this, the way in which levelling is treated may be taken as an example. Almost every known method is fully explained and its merits and demerits discussed—ordinary section levelling, levelling for cross-sections, contouring, theodolite and barometric levelling and precise levelling. The only omission seems to be that of theodolite contouring at a single operation—a most useful process, in which level and stadia readings are taken at the same observation with the telescope levelled, while the bearing is read on the horizontal circle. This, it is to be hoped, will be referred to in future editions. Minor slips there must be in every book, especially those of a technical nature; but in this it has been possible to discover very few, and the author will doubtless accept our apology for pointing out that both fore and back sights, read downwards from the top of a wall (p. 164), should be entered with the *minus* sign, just as both when read upwards are entered as *plus*. It is also, to our thinking, best to check each page of a level book, as is described for a complete series on p. 138, entering the last reading on a page as a foresight for this purpose, even if in reality it be an intermediate, and repeating the same entry as a back-sight on the top of the next page, by way of carrying forward. A few notes on the method of entering cross-levels in the level book would, too, have been valuable, it being quite possible, and we fancy usual, to enter them in the same book as the centre-line levels, noting them by reference letters and notes in the "Remarks" column. Without detailed description, however, this might prove puzzling to a novice; as might also the explanation of the use of both faces of a theodolite on p. 84, which needs amplification and qualifying. It is not every form of theodolite which can be treated in the manner described, as plain theodolites cannot be revolved vertically through 180 degs.

Similarly, instruments having ordinary circular compasses and those having trough compasses need to be differently treated when traversing, if the compass check upon the observations is to be used; and in so complete a book as that now under review these differences ought to be mentioned and described. It is also difficult to follow the closing of the traverse on p. 100, unless A and G are on the same point. Why not work out columns of total latitudes and departures of each station as referred to station A, plotting by ordinates from A in every case? Then, on closing, there should be no appreciable error in so small a traverse as that taken in the example. So large an error as is named would lead most surveyors to do the work afresh, unless an exceedingly rough approximation to correctness, such as is obtained by "correcting" (or fudging), is sufficient for their immediate purpose. In the matter of photographic surveying also it is permissible to question the advisability of all that is suggested. To allow a series of negatives to be taken in the field by one surveyor, and then sent home to be developed by a skilled photographer, possibly after many months and at much risk of accidental exposure to light, seems likely to lead to much loss of time and temper. Surely it is better that the surveyor should himself master the ordinary procedure of developing and printing a photograph, and that he should carry a portable dark-room with him to enable photographic work to be done in the field. Then an unsuccessful negative could more readily be replaced, while several prints from each could at once be taken, and distributed among the members of the party, complete sets being sent home from time to time by different routes as opportunities arose, thus greatly reducing the risk of spoiling everything by the loss, breakage or exposure of a few negatives out of a series, and ensuring that any mistake in judgment of light or focus shall be at once discovered and corrected.

It seems certain that a good deal of photographic surveying will be done in the future, either by the aid of the Bridges-Lee photo-theodolite mentioned in this book or some other improved instrument, and so it is the more important that every surveyor engaged in exploration work should be an expert photographer. Thus it would be possible to discuss section after section of Mr. Whitelaw's important work—not in a carping but in a friendly spirit; for it is only upon a thoroughly sound work that discussions of this nature can be raised, and it is only by such discussions that the possibilities of reaching a still higher standard in future editions can be pointed out.

* "Surveying as practised by Civil Engineers and Surveyors," by J. Whitelaw, junior, A.M.Inst.C.E. London: Crosby, Lockwood & Son. Price 10s. 6d. nett.

Strood Infectious Diseases Hospital Competition.—The first premium has been awarded to Mr. E. Godfrey Page, A.R.I.B.A., 4 and 5, Warwick Court, Gray's Inn, W C.

Messrs. Mabie, Todd & Bard make a variety of designs in fountain pens, ranging in price from 10s. 6d. to 18 guineas, and are making a special display at their premises at 93, Cheapside, or 95A, Regent Street, in view of Christmas, which they find causes a considerable demand for the "Swan" fountain pens for gifts.

Workmen's Housing Competition.—The assessor, Mr. T. Blashill, in the competition for houses for workmen to be erected on the Hornby Street area, for the Liverpool Corporation, has awarded the first premium of £250 to Mr. James Dodd, of Liverpool; the second of £150 to Messrs. Brocklesby, Marchment & East, of Merton; and the third of £100 to Mr. A. Mitchell Torrance, of London. Designs by Mr. H. A. Matear and Messrs. Worthington, Simon & Crawford, of Manchester were commended; and Messrs. Spinks & M'Jarrow, and Messrs. Grover, Halford & Cutler, both of London, placed fifth and sixth respectively.

SHOPS ON THE HIGH BRIDGE, LINCOLN.

A WORK of restoration has been completed on the High Bridge, Lincoln. The picturesque structures of the sixteenth century occupied as shops for many years still remain on the bridge. They were showing signs of insecurity, and the Corporation, to whom the property belongs, determined on a restoration rather than demolition. The work was placed in the hands of Messrs. Watkins & Son, architects, of Lincoln, who, in their report to the Corporation, stated:—"In planning the building from the measurements we have taken on the site, we find that it was laid out on geometrical principles, and that the angle of 45 degs. was employed in spacing out and fixing the sizes of the respective rooms, and also for determining the positions of the constructional timbers and the manner of bracing them together. The ground floor space of the three houses was divided into twelve squares of equal size, four of which were given to each house. At the intersections of the outlines of these squares are placed storey posts (except at the intersection in the middle of each room, where it is not required), which are vertical pieces of timber erected for the support of the walls floors and roof above them. These storey posts are framed into sills at the bottom of the bressummers at the top of each storey, and the four main angles of the building are further secured in their positions by diagonal beams or braces, which latter also support the floor joists. The whole structure is thus braced or laced together as it were at each floor line, in a simple, yet intelligent and skilful manner." The architects are of opinion that when first constructed the buildings were not intended for dwelling-houses, for the reason that there were no original fire-places and the windows were not glazed. Neither were there any staircases, the upper storeys being reached by steep ladders. In laying bare the timbers it was found that the fire-places and chimneys which had been added rested entirely on the timbers of the first floor, and had no support whatever from the ground below. One chimney in particular was very massive, and the great weight of this and the two others, had caused some of the supports which cross the River Witham to break. Originally the ground floor was on a higher level than at present, and Mr Watkins is under the impression that at some time the crown of the bridge has been lowered to ease the gradient of the street, and that the floors of the shops were lowered in consequence. This was probably done in 1815. The settlement of the building over the river was found to be as much as 18in, some of the timbers being broken and others very much strained. They had to be placed in their original positions by the aid of screw jacks. One of the main difficulties in this work was the absence of any foundation upon which to place the jacks; a foundation had to be constructed over the river, and this having been done, the structure was restored to its original horizontal position from end to end. All the sound timbers have been retained and the decayed ones replaced. The original character of the building is as nearly preserved as the modern requirements of the shops on the ground floor will permit. The upper storeys disclose the old timbers as doubtless they appeared four or five centuries ago, the upper windows being designed from sketches of the late Mr. Ross, an antiquarian whose original drawings are in Burton Hall. The back portion of the buildings is in character with the front, and is supported by an arch of masonry, which has been thrown across the Witham for the purpose. The work has been carried out by Messrs. Halkes Brothers, of Lincoln.



SKETCH OF THE ADOPTED DESIGN FOR THE NEW STEEL BRIDGE OVER THE THAMES AT VAUXHALL.
MAURICE FITZMAURICE, CHIEF ENGINEER TO THE LONDON COUNTY COUNCIL.

THE VAUXHALL BRIDGE QUESTION.

AT last week's meeting of the London County Council the Bridges Committee recommended "(*a*) That the resolution of the Council of February 22nd, 1898, directing that the new Vauxhall Bridge be a granite bridge backed with concrete be rescinded. (*b*) That the estimate of £170,000 submitted by the Finance Committee for the building of the superstructure of the new Vauxhall Bridge be approved, and that an expenditure up to the amount be sanctioned; that the design submitted, showing a steel elliptical arch structure, be adopted, and that the engineer be instructed to prepare the necessary contract, plans and specification."

Lord Monkswell, on behalf of the General Purposes Committee, asked that the chairman of the Committee should take the report back with a view to giving the Council further information as to the reasons which induced them to recommend the substitution of a steel for a granite bridge. The reason given was that the plans as originally proposed for a granite bridge would not comply with the Act of Parliament; but he understood that even if Parliament were induced to reconsider the Act, the Bridges Committee would not have a granite bridge.

The Committee's Reasons.

Mr. Sears (chairman of the Bridges Committee) said the matter had been carefully considered by the Committee, and they had come to the decision they had with very great regret. There were two grounds upon which the decision of the Committee had been arrived at. The first was that stated by Lord Monkswell; but there was a more material reason, namely, the difficulty with regard to the foundations. When the original borings were taken the engineers thought they would have arrived on hard blue clay, and then they would have been able to have got sufficiently strong foundations for carrying a heavy granite bridge. It had now been discovered that the clay was of a softer nature than expected, and could not carry the weight, and it was too late now to make alterations and increase the width of the foundations in order to carry a heavier bridge. The present engineer was not responsible for this, but they had to act entirely on the advice of their present engineers. The opposition arose entirely from artists, who believed the design of the bridge would not be so artistic as one constructed of granite. He quite agreed that granite would be better than steel, but that was not to say that a steel bridge was not capable of artistic treatment. They had only a first sketch of the bridge before them, and the detail of the ornamentation had to be considered, and their engineer was prepared to consult with the architects of the Council with regard to the artistic finish of the bridge. What they had to consider was that the engineer refused to construct a heavy granite bridge on the piers in the river.

Mr. Ward said that in only one case had architects been associated with engineers in the construction of a Thames bridge, and that was the case of the Tower Bridge, and no bridge had been subjected to greater criticism. The proposed bridge would be similar to Westminster Bridge, and he did not think that was so inartistic as it was said to be.

Mr. Straus was of opinion that the foundation question settled the whole matter. If they had a body composed of the most artistic designers in the world they would never get them to agree.

Mr. Beachcroft moved that the report be referred back. He asked what they had been doing for five and a half years if at the end of that time they suddenly found they were mistaken in the composition of the bottom of the river.

Mr. Burns, M.P., said Mr. Beachcroft had been influenced by outside criticism, which was undeserved and unfounded. The delay was owing to the contractor and the Thames Conservancy. If there ever was a body who had listened "with bated breath and whispered humbleness" to artists and architects on matters of so-called culture, it was the London County Council. Whenever they had allowed their primitive common-sense to be overruled, and whenever they departed from their primitive common-sense and abandoned their own ideas of what was beautiful, either in bridges or parks, at the instance of artists, it always led them into a bog of difficulties and entanglements infinitely worse than they were moved to adopt before they consulted artists. They were not in this instance to be governed by a few vulgar and ignorant journalists. Ruskin had said, and said truly, that no country in the world could build such good, strong and beautiful things in bridges of iron and steel as England. They had only to look at Westminster Bridge. If they could only find the money and levels he would have every bridge across the Thames a replica of Waterloo Bridge.

Mr. Emden suggested that it was not the proper province of architects to be brought in to design bridges. There was no proposition before the Council by which a stone bridge could be placed on the piers.

Mr. W. H. Dickinson thought the Bridges Committee had made out a good case; but it was better to have a little further time before they definitely settled what the design should be.

Mr. Wightman appealed to the Council to get on with the bridge, and let architects and artists take a back seat.

After further discussion the amendment was rejected, and the recommendations were agreed to.

The following letter from Mr. H. H. Statham recently appeared in the "Times":—

The vigorous protest of Sir W. Richmond against the newly-proposed design for Vauxhall Bridge (see p. 246 of last week's issue) is not a bit too strongly worded. The present design is worse than Sir A. Binnie's; indeed, it is no exaggeration to say that if an architect's pupil sent in such a design for a student's competition at the Institute of Architects he would be the laughing-stock of his fellow students.

It may be said that this is only a first sketch; but that such a thing could be turned out of the London County Council engineer's office as a suggestion, and approved by the Bridges Committee as a suggestion, is sufficient to show that both the Committee and their engineer are perfectly incompetent to deal with the problem from the æsthetic point of view.

It would not be wise, however, for architects to assume that the originally proposed concrete and granite spans to the bridge can now be carried out. From what I have heard, they may find the facts against them. That this should be so is, however, really the fault of the Thames Conservancy, who are masters of the situation, and who have made demands in regard to waterway and headway which must render it exceedingly difficult to erect a monumental bridge except under the most favourable conditions in regard to foundations. If the Conservancy would have admitted one more pier the construction of a granite bridge would have been easy, without, I believe, any real inconvenience to the navigation. But they are now making demands as to waterway which will render the erection of such grand bridges as London and Waterloo, which have been the admiration of the whole world, an impossibility for the future. Is this desirable?

To return to the immediate question, that of the absurd design now offered for the proposed bridge; it has reached me, on good authority, that the Bridges Committee, when asked to appoint an architect to design the decorative portion of the bridge, are prepared to set up a *non possumus* on the grounds—(1) that the architects do not agree among themselves; (2) that there is no time to go into the question of design in the artistic sense. Both reasons are absolutely futile. The first is only the result of their own misapprehension. If they asked six eminent painters to give them a sketch for a decorative historical picture for the council-room they would get six quite different designs, and each painter would probably prefer his own. If they asked six architects for a design for a bridge they would in like manner get six different designs. The Bridges Committee were never asked to consult half a dozen different architects. They were asked to appoint one. They refused on the ground that it would be an affront to the feelings of their engineer, which they seemed to consult before the interests of the public whose money they were spending. In any case, the objection was absurd, since engineers do not profess to study architectural design, and no one expects it of them.

The plea of want of time is equally futile. Any capable architect, furnished with the engineer's structural lines for piers and spans, could produce in a fortnight a design which could form the basis of a contract. I could name a dozen offhand who could do so. The full-size details would have to be elaborated afterwards, of course; but there need be no delay worth speaking of in getting out a design.

Everyone who has followed this matter as I have through all its stages, will be convinced that the persistent refusal of the Bridges Committee to follow the example always followed in France, and to appoint a com-

petent architect to treat the decorative portion of the bridge, is due to nothing better than an obstinate refusal to be interfered with. All very well if they were spending their own money, but this is a ratepayers' as well as an artists' question. I am painfully aware from long experience that the average Englishman is a Gallio who cares for none of these things. But we are not all average Englishmen; and in London, where a considerable portion of the best culture of the country is collected, there must surely be a respectable minority of ratepayers who do care for the artistic aspect of London. I would appeal to them, and ask them whether they are content to sit quiet and allow a committee dealing with their money to go on, through mere pig-headedness, defacing the Thames with the Brobdingnagian gimcracks which constitute what engineers regard as "ornamental" bridges.

To a "Daily Chronicle" representative, Col. Sheffield, the chairman of the Bridges Committee of the London County Council, said: "The Bridges Committee have had artists and architects and engineers by scores before them whilst we have been deciding upon the plans, and no two of them gave us the same advice . . . . We cannot have a stone bridge. We must have a height of 18ft. above high water and a span of 70ft. To do that with stone would mean a tremendous gradient, and then our foundations are not strong enough. But the artists grumbled about the designs of the Tower Bridge, and now everybody admits that it is a beautiful piece of work!"

Mr. T. G. Jackson's Views.

Following Sir William Richmond's suggestion, Mr. T. G. Jackson, R.A., went to the Council offices to see the design. He says in a letter to the "Times":—

Two designs were hung on the wall. Both consisted of steel arches between piers of masonry. The arches of one were elliptical, and the spandrels consisted of iron plates punched with huge quatrefoils and trefoils, some of them 5ft. 6in. across. The piers bore by way of decoration huge unmeaning panels of an appalling design, and were finished with coarse ineffective mouldings. The commonplace cast-iron balustrading was perhaps the most tolerable feature.

The alternative design was a little better. The arches were segmental; the sham Gothic punchings of the spandrels had disappeared and also the dreadful panels on the piers; but the piers were ill-proportioned, the details faulty, and the balustrade an imitation of the coarse engineer's Gothic of Westminster Bridge, which seems to be regarded as a model to be followed.

It appears that the worse design of two very poor ones is to be carried out. For the credit of our national taste I trust some mode may yet be found of averting so great a disaster. . .

Counsel for the Defence—Mr. Woodward.

Mr. William Woodward, A.R.I.B.A., says:—

I am a great admirer of the works of Sir William Richmond, but I should hesitate to accept him as an authority on bridge design. . . . Professor Beresford Pite represents a school of designers which, fortunately, the German Emperor has kept in check in Berlin, and, much as some of the work of that school may be justly admired, I should look upon the idea of a Vauxhall Bridge from that school with unmitigated horror. Mr. H. H. Statham has himself made a design for Vauxhall Bridge, and at the time he exhibited it at the Royal Institute of British Architects I took occasion to say that its realisation would be little short of a public misfortune. The engineer of the London County Council has stated that the design recently exhibited is only a sketch design, and I am quite sure that there are architectural draughtsmen in the employ of the Council who would be able to clothe the engineer's work with ornamental design quite equal to any which might be produced from the pencils of the dozen men whom Mr. Statham has in his mind's eye. . . .

[We have taken the liberty of reproducing the sketch on the preceding page from the "Daily Graphic."]

Bricks and Mortar.

Aphorism for the Week.

He is a sorry architect who is a bad mathematician.—Joseph Gwilt.

Our Plates. The design by Mr. W. Norman Twist for a small church and memorial chapel was one of the drawings awarded the Birmingham Architectural Association travelling studentship in July last. The church was supposed to be built on a country estate adjoining the mansion, with a small private memorial chapel and entrance on the south side; the parishioners' entrance from the road on the north side. A detached gate tower is included in the design. Walls and domes to be constructed in stone; barrel-vaults over nave, transepts and choir to be concrete, with lead roof over. All interior surfaces to have colour decoration. Seating accommodation for 200 worshippers. In fulfilment of the second half of the competition the author has been making measured drawings and sketches at Oxford.—In The Builders' Journal for November 5th last another composite sketch of Nevers by Mr. Percy Wadham, A.R.E., was published, and on p. 201 of that issue some particulars were given of this quaint old French town.

Where Houses Subside. The subsidences of buildings in the Black Country due to the mining operations below them have been going on for many years, but some additional facts have lately been given by the "Birmingham Post." Renewed attention has been directed to the matter by recent subsidences at Netherton, near Dudley. Along both sides of the High Street are cottages and shops jumbled together at almost all angles, as though engaged, like drunken men, in a desperate effort to prevent each other from toppling over to the ground. Bulging walls, careening chimneys and distorted window-frames are everywhere to be seen, and there is scarcely a house without cracked and patched walls. In the lower front room of one house the mantleshelf, not more than 5ft. long, is a good 10in. lower at one end than the other. A large fissure at the fireside has been plastered up. Before the wall received this attention, it seems, the tenant could see quite plainly into the next house, and the neighbours were accustomed to exchange conversation daily without the slightest inconvenience. Upstairs in the front bedroom the chimney wall has parted from the rest of the structure, and a gap several inches in width admits the light of day. A tailor's shop across the road has only one window intact out of five; the other four are cracked from top to bottom. The insurance companies will take no risks from subterranean disturbances, and presumably the tailor has too little faith in the future to set the glaziers to work. Twenty years ago, he explained, his shop stood nearly a yard above the street; to-day it is a foot below. Lower down, at Darby End, is a row of cottages, their bedroom windows level with the main road. The houses have sunk 15ft. A public-house adjoining has revived itself, Phœnix-like, on the ashes of its former self. After the first subsidences the bedroom became the bar, and then when this chamber, in turn, had almost disappeared, two more storeys were added. That was only seven years ago, yet already signs of disunion in the new building are said to have manifested themselves. A board school in the vicinity is built of corrugated iron, and not brick, because periodically it is necessary to lift the school bodily with "jacks" in order to save it from interment. And thus the grim story goes throughout the whole of the district, where nature seems to have indulged in a mad freak to turn the houses upside down.

Law Cases.

An Unsuccessful Winding-up Petition.—At the Assize Courts, Strangeways, Manchester, the petition was recently heard to compulsorily wind up the Stanley Paint Manufacturing Co., Ltd., which was incorporated in September, 1899, and carried on business at 19, Luton Grove, Liverpool. The petition was made on behalf of Messrs. Lundell, Spence & Co., Ltd., of Hull, but was opposed by counsel on behalf of debenture-holders and 861 unsecured creditors. The Vice-Chancellor, in giving judgment, said that it was evident that the petitioner was in ignorance of the state of affairs of the company, and certain allegations had been made which were inaccurate. The petition would therefore be dismissed with costs.

Architects and Speculations.—In the King's Bench Division of the High Court of Justice the case of *Owen and Another* v. *Davison* was heard on November 24th. The plaintiffs, Mr. S. Owen and Mr. G. F. Ward (trading as Owen & Ward), architects and surveyors, of 71, Colmore Row, Birmingham, sought to recover from the defendant, a licensed victualler of London, the sum of £161 commission and expenses for preparing plans for the erection of an hotel at Benfleet, Essex. The plaintiffs' case was that instructions were given to Mr. Ward by the defendant in June, 1901, when the site of an hotel proposed to be erected at Benfleet was visited. The plaintiffs prepared the plans of an hotel estimated to cost £7,000 and charged the defendant 2 per cent. The charge authorised by the Royal Institute of British Architects was 2½ per cent., but as specifications were not prepared plaintiffs made a reduction of ½ per cent. The remainder of the sum sought to be recovered was charged for expenses in visiting the site and other incidental expenses. The plans were sent to the defendant, who approved them and returned them with a letter of approval. The defendant's case was that he met a man named Bell who, he understood, was said to be the London agent of the plaintiffs' firm. Bell proposed to form a syndicate to erect and finance the hotel, the defendant to procure a license and to undertake the management for one year. Mr. Ward, he said, agreed with this scheme, and defendant understood that the plaintiff firm were to go shares in the profits of the sale of the hotel after it had been fairly set afloat. The defendant never gave any orders on his own account to the plaintiffs. He understood that he was merely a member of a syndicate or partnership who were to share-and-share alike in the profits of the scheme, which however fell through owing to the failure to obtain a licence. The plaintiffs, in reply, denied that Bell was an agent of theirs, or that there was any understanding whatever as to a partnership or syndicate, or that they were to finance the scheme. Both the plaintiffs and the defendant gave evidence in support of their different views of the transaction, but Bell, the supposed agent, was not called, neither side having been able to secure his attendance. The case, therefore, depended upon the evidence of Mr. Ward and the defendant, which was contradictory, and the jury, it appeared, found it very difficult to decide between them. Eventually they gave a verdict for the defendant.

Enquiries Answered.

The services of a large staff of experts are at the disposal of readers who require information on architectural, constructional or legal matters. Questions should in all cases be addressed to the Editor. The querist's name and address must always be given, not necessarily for publication.

Payment for Right of Light.

LONDON, E.—ENQUIRER writes: "My neighbour's house, situated in its own grounds, has two windows overlooking the adjoining property, which belongs to the School Board. The house has been built fourteen years. The Board requires my neighbour to pay a fee for the two windows, and to sign an agreement to that effect, which they also reserve to themselves to terminate at six months' notice when they think fit. Can she refuse?"

The School Board has the right of erecting a wall or hoarding on its own property at any time within nineteen years and a day from the opening of the windows in such a way as to block them up. If the wall in which the windows are situated actually abuts upon the grounds of the School Board, there is nothing for it but to submit, and either pay a rent or allow the windows to be blocked up. If, on the other hand, there be a passage-way between, it is obvious that some light will reach the windows whatever wall or hoarding may be erected, in which case the Board can be defied, as probably these are not important windows, and sufficient light for most purposes could be obtained by the introduction of reflectors or prismatic glass, or even by painting the wall white. A mistake was made originally when windows were constructed overlooking adjoining property. G. A. T. M.

Book on Perspective, Design and the Orders.

EXETER.—F. W. writes: "Kindly name a good book on elementary perspective, and the best book on elementary design, both suitable for the South Kensington examinations; also, whose orders of architecture would you recommend for study for the R.I.B.A. examination?"

(1) "Linear Perspective," by G. A. T. Middleton (B. T. Batsford, 94, High Holborn, W.C., price 1s.). (2) See reply under heading "Theoretical Mechanics" on p. 122 of our issue for March 20th, 1901, and another under heading "Architectural Training" on p. 33 of our issue for August 28th, 1901.

Work to Measure around Skipton.

LONDON, W.C.—E. B. M. writes: "The reply to 'Probationer' on p. 236 of your issue of November 19th is rather misleading, as Skipton Church is not thirteenth-century work, and the modern 'Gothic' porch is no better than it should be; however, the church is interesting and contains a fine Perpendicular screen which would do for a 'testimony of study.' I presume the name was mistaken for Skelton—near York—which is, as you say, one of the finest specimens of thirteenth-century work in England."

We regret this error.

TO CONTRIBUTORS.

THE EDITOR will be pleased to consider any articles, illustrated or otherwise, dealing with old and new buildings, methods of construction, or other matter of an architectural character. He will also be glad to consider architectural photographs and sketches (the latter preferably in black and white) and measured drawings of work in this country or abroad. News items of interest to architects and builders will also be considered provided the name and address of the sender is given; no notice will be taken of anonymous contributions. All communications should be addressed to the Editor of the BUILDERS' JOURNAL, Effingham House, Arundel Street, Strand, W.C.

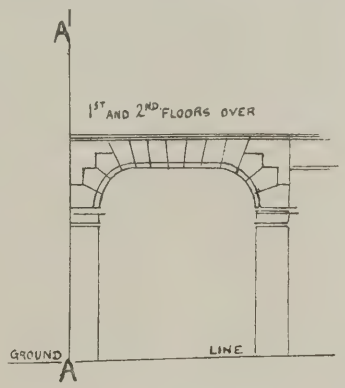
Books on Brass Rubbings.

WARWICK.—INTERESTED writes: "What books are published on the rubbing of monumental brasses in churches, and from whom may they be obtained?"

"Monument Brasses," by C. Boutel (1847), another by the Cambridge Camden Society (1846), and "Monumental Brasses of the Continent of Europe," by W. F. Creeny (1884). Mr. B. T. Batsford, of 94, High Holborn, W.C., could perhaps supply copies of these.

Flattened Arches.

LONG EATON.—ABUTMENT writes: "Is the stone arch shown by the accompanying sketch a proper form of construction to use in the position shown? The line A A is the limit of frontage, and consequently there is no abutment on that side. I am unable to



determine if there is any thrust on this arch which requires abutment or if it is all transferred vertically on to the pier."

The arch is not safe as shown: the horizontal thrust at the keystone is transferred to the springing independently of any arrangement of joints of voussoirs, which does not make the arch a practical lintel (we have seen some beautiful interlocking voussoirs in chimney-breasts). The arch may be made safe by concealed ironwork. The good taste of such construction is, however, doubtful: a tie at the springing would be efficient and honest, if the circumstances allow it.

Buildings to Measure around Macclesfield.

MACCLESFIELD. — PROBATIONER writes: "Kindly name some buildings within a radius of 20 or 30 miles of Macclesfield suitable to measure for the R.I.B.A. testimonies of study."

Astbury, not many miles from Macclesfield, contains the finest village church in Cheshire. The church is exceptionally rich in carving, and much suitable material for sketching may be found here. The aisle windows are Pointed, with quatrefoils; the other windows are Perpendicular. The nave is separated from aisles by pointed arches springing from clustered pillars. *Prestbury*, only two miles distant to the north of the town, is well worth visiting, although not suitable for measured work. The early foliated caps on the south side of the nave are also worth sketching. To the south of the church, but detached from it, is a chapel of very rich Norman work, the west doorway of two orders being particularly rich in detail. *Nantwich*, between 20 or 30 miles—as the crow flies—from Macclesfield, contains the parish church of SS. Mary and Nicholas. The main portion of the church is of fourteenth-century work. The choir is especially rich in detail and is worthy of study. It has three bays, and is lighted on each side by fine flowing traceried windows, surmounted by ogee canopies on the outside. Good detail will be found in the north doorway. *Chester*, though without the 30-mile radius, contains much that is sketchable, and is very rich in half-timber work. The cathedral, of course, contains examples of every style of Gothic architecture, any part of which is suitable for measuring-up. G. A. T. M.

Wood for Cycle Track.

PONTYPRIDD.—X. Y. Z. TRACK writes: "What would be the best wood to use for a cycle track? The track is to be built near the sea-shore, in fact, within 200yds. of the beach, so that considerable moisture will be contained in the air. Would you advise creosoted spruce for the framework? The face or flooring boards will be of 2in. by 2in. stuff. Cost must be taken into consideration."

If cheapness is an important consideration in the erection of the proposed cycle track, spruce or Memel or Riga fir will probably be found the most convenient material, but this should be thoroughly well creosoted to ensure greater durability in the exposed situation in which the track is proposed to be built. Other woods which might be used are larch and elm, if readily procurable in the locality. Larch is well suited for positions exposed to weather, and is often for that reason employed for posts, palings, railway sleepers and such like. Elm, if constantly wet, is also suitable, especially for the timbers fixed in the ground. The whole should be kept well tarred or creosoted to ensure durability. W. H. M.

New Houses and Building Lines.

H. M. S. writes: "(1) My client bought the land marked A on the accompanying plan (not reproduced). The sale bill and agreement of sale state that only two houses are to be built so as to form a building line with the houses on the west. If my client places his house at the point marked B, the windows will overlook the lawn of existing house marked C, and he wishes to place his house further back upon the hill, partly behind his own house, leaving all the front with a width of about 120ft. for gardens and carriage-drive. I am under the impression that it is legal to build behind the building-line but not in front of it. (2) Kindly name one of the most eminent K.C.'s on this subject."

(1) The information is insufficient for an expression of opinion on this particular case. So much depends upon the precise nature of the conditions under which the land was purchased, that your best course would be to place the matter in the hands of an experienced local solicitor, who could make himself acquainted with all the details. (2) Mr. J. Fletcher Moulton, K.C. T. E. C.

Ancient Lights.

BOSTON.—FANT writes: "Referring to the accompanying sketch (not reproduced), can A legally prevent anyone erecting a wall on the edge of his property, that is, 10ft. 6in. away in front of his window and higher than the sill? The two windows have been in existence upwards of forty years. If so, is the section the proper method of showing the infringement? Would the amount of light lost be the triangle coloured green? I may mention that A considers that the erection considerably lessens the value of his property; but he certainly does not wish to make a pecuniary gain out of the trespass, yet desires to maintain and uphold his established rights."

The existing law does not necessarily require that the height of a wall shall not exceed the level of the window-sill of an ancient light. Unless A can show that the wall would cause a substantial deprivation of light to the existing windows, he cannot prevent the adjoining owner erecting a boundary wall upon his own property. A cannot claim a prescriptive right of uninterrupted view over his neighbour's property down to the level of the sill of the ground-floor windows of his house, in addition to any easement or right of light which he may

have obtained by prescription. Trivial complaints with regard to any alleged loss of prescriptive lights are difficult to uphold when brought into a court of law. The amount of light which might be affected or obstructed by the erection of the boundary-wall would depend to a very large extent upon the position and arrangement of the surrounding buildings. T. E. C.

Setting-up a Sundial.

ROCHESTER.—DIAL writes: "Kindly give a simple method of making a vertical sundial on a wall facing a little east of south. From what I have read I take it that when the gnomon has been fixed it is best to mark off the hours from the shadow test at different times. At what angles, therefore, should the gnomon be fixed, vertically and horizontally?"

The simpliest method of setting up your sundial would be to place it on the wall so that it may face due south. If you propose to use a metal dial it may be attached to the wall by nailing it to wooden plugs driven into the wall (as A, Fig. 1), or it may be bedded in plaster or cement. If stone or slate be used it may be let into the wall (B, Fig. 1). The deviation of the surface of the wall from the direction east and west may be found from the Ordnance map, or as follows:—Drive a stick into the ground perfectly upright, correcting it by means of a plumb-line. With the bottom of the stick as centre, describe a circle on the ground. At any time before noon mark the place where the end of the stick's shadow just reaches the circle. Do the same in the afternoon, and join the two points thus found. Bisect this line and join the bottom of the stick to the point of bisection. This line is the true meridian, and the gnomon of the sundial should lie either on or should be absolutely parallel to it. The dial face must be at right angles to the meridian. The true meridian may also be formed by means of a magnetic compass, remembering that the magnetic meridian deviates 17 degs. W. of the true meridian. To graduate the dial, proceed as follows:—Take a piece of paper and draw on it a line AB (Fig. 2) down the centre, and another at C near the top of the paper at right angles to AB. Take any point D in AB and draw a perpendicular to AB. At C draw CE, making an angle DCE equal to the complement of the latitude of the place at which the dial is to be set up (the latitude also determined from the Ordnance map). From E, where CE cuts the perpendicular DE, draw EF at right angles to CE. At F draw another perpendicular FG. Mark off FH equal to FE, and with H as centre describe a quadrant FJ. Divide this quadrant into six equal parts, and through the points of division draw lines cutting FG at K, L, M, N and G. From C draw lines through K, L, M, N and G. These last lines represent the hour lines and can be traced from the paper on each half of the dial, which will be figured as Fig. 2. The gnomon rises from C at an angle equal to the latitude of the place and at right angles to the line XY. For a dial 1ft. square the gnomon should be about ¼in., but of course the thickness varies as the size. It must be remembered that the sun is not always in the south at noon, and therefore the dial does not always show the exact time. The following corrections must be made when reading a sundial: first add or subtract four minutes for every degree the dial may be west or east of Greenwich, then correct according to the following table:—

January.			July.		
Days.		Mins.	Days.		Mins.
1	Fast	4	4	Fast	4
6	,,	6	10	,,	5
8	,,	7	21	,,	6
10	,,	8			
13	,,	9	August.		
16	,,	10	10	Fast	5
19	,,	11	15	,,	4
22	,,	12	20	,,	3
27	,,	13	24	,,	2

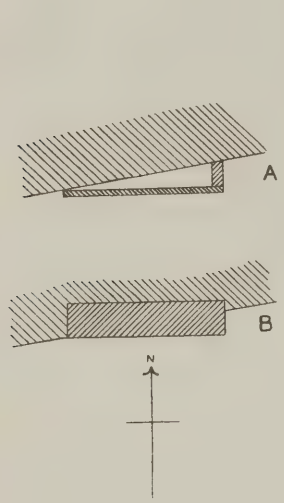


FIG. 1.

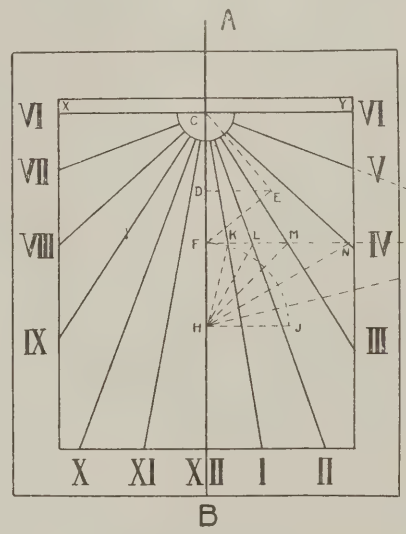


FIG. 2.

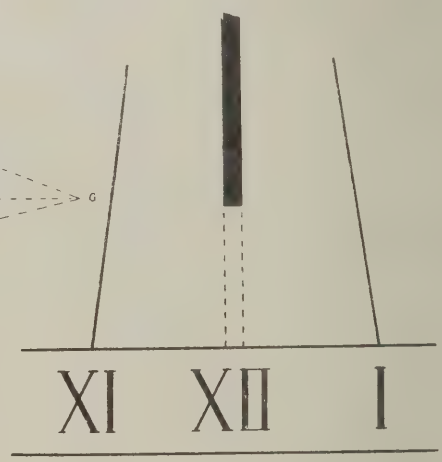


FIG. 3.

February.		
1	Fast	14
21	,,	13
27	,,	12
March.		
1	Fast	13
3	,,	12
7	,,	11
11	,,	10
15	,,	9
18	,,	8
21	,,	7
25	,,	6
28	,,	5
April.		
3	Fast	3
7	,,	2
11	,,	1
15	,,	0
20	Slow	1
24	,,	2
May.		
1	Slow	3
June.		
4	Slow	2
9	,,	1
14	,,	0
20	Fast	1
24	,,	2
29	,,	3

December—*cont.*		
Days.		Mins.
19	Slow	2
24	,,	0
26	Fast	1
27	,,	1
31	,,	0
September.		
4	Slow	1
7	,,	2
10	,,	3
16	,,	5
19	,,	6
21	,,	7
24	,,	8
27	,,	9
30	,,	10
October.		
3	Slow	11
7	,,	12
10	,,	13
14	,,	14
19	,,	15
27	,,	16
November.		
15	Slow	15
20	,,	14
24	,,	13
27	,,	12
29	,,	11
December.		
2	Slow	10
7	,,	8
11	,,	6
15	,,	4

December—*cont.*		
Days.		Mins.
28	Fast	2
30	,,	3

It is usual to find the number of minute correction to be made for difference of longitude E. or W. of Greenwich, and to add or subtract as the case may be from the figures of the above tables and then to engrave the corrected table on the face of the dial. It should also be noticed that the thickness of the gnomon is likely to produce an error, unless some allowance is made. To overcome this difficulty a gap is left down the centre of the dial equal in width to the thickness of the gnomon (Fig. 3). Thus when the sun is due south at noon the shadow of the gnomon will exactly fill the space at XII. Before noon the shadow of the west edge of the gnomon indicates the hours, while after noon it is the east edge that registers. The length of the gnomon can easily be found experimentally. It should be of such a length that a shadow of convenient length is thrown upon the dial at all seasons of the year. Beauty is also a point well worth considering when designing a sundial. G. A. T. M.

Articles on Building Construction.

PORTSMOUTH.—S. H. writes: "In what numbers of the BUILDERS' JOURNAL were the articles published on building construction to meet the Board of Educaton's revised syllabus?"

The articles appeared in the following issues:—1901: September 25th, October 2nd, 23rd and 30th, November 6th, 13th and 20th, December 4th, 11th, 18th and 25th. 1902: January 8th and 22nd, February 12th and 26th. The answers to the South Kensington examination questions appeared in the following issues:—Elementary Stage, May 7th; Advanced Stage, May 14th; Honours (Part I.), May 28th; Honours (Part II.), July 16th—all 1902. Copies of these issues may be obtained from the Publisher, price 2d. each, with the exception of October 2nd, 1901, which is out of print.

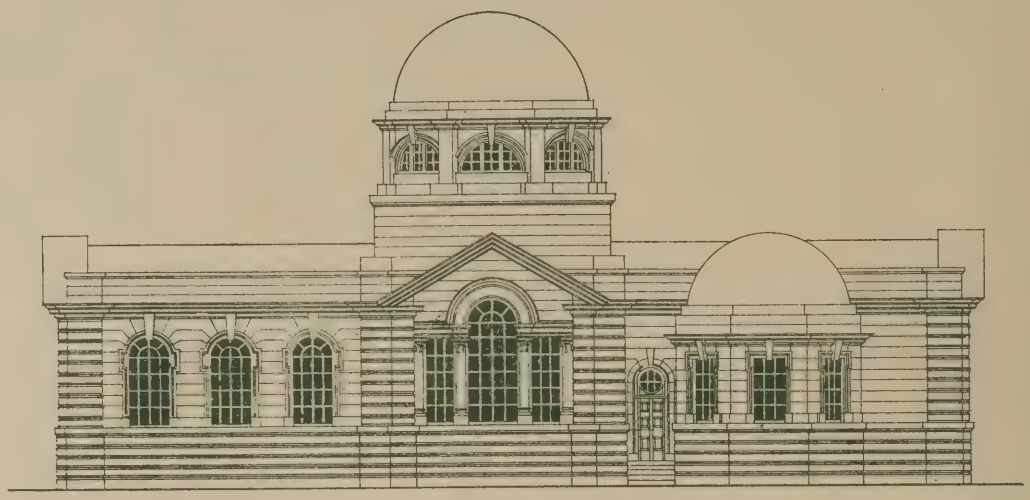
Submitting Plans to Urban Councils.

ST. ALBANS.—VEXED writes: "(1) Is it necessary to colour plans which are submitted to an urban council? (2) Where can copies of the Public Health Act, 1875, be obtained? Is any portion published for the special use of architects, &c?"

(1) No, if the construction is clearly explained without. (2) Messrs. Eyre & Spottiswoode, East Harding Street, E.C., the King's Printers. We do not know of any publication on the Act specially compiled for the use of architects.

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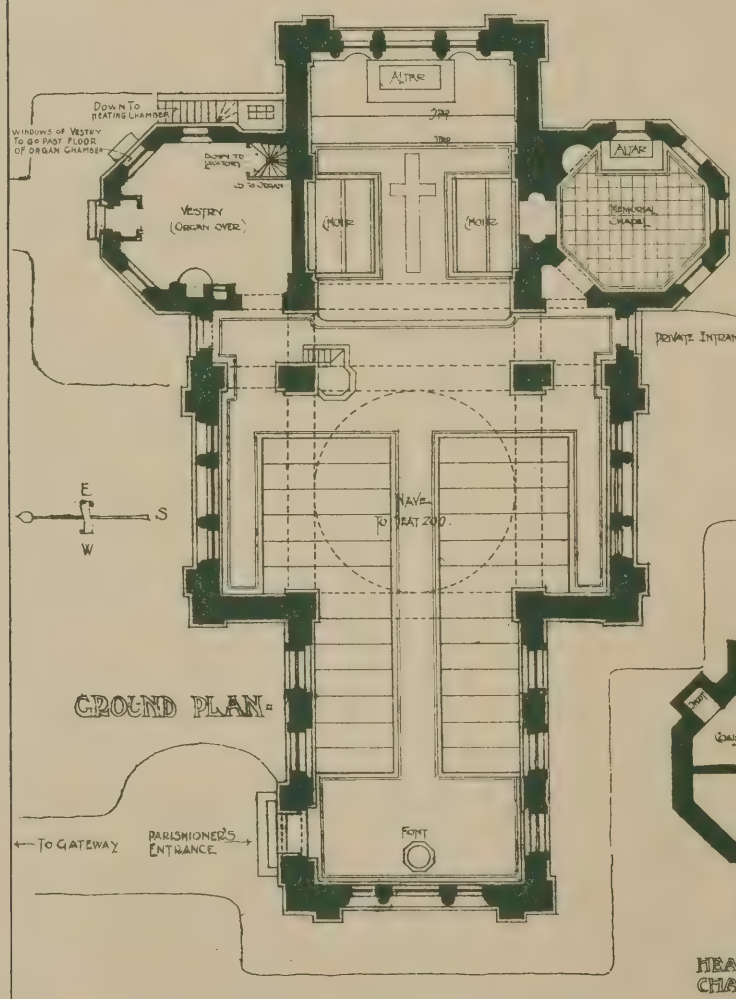
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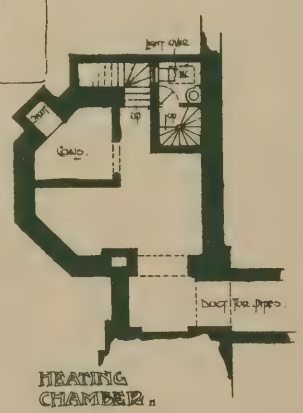
SOUTH ELEVATION.

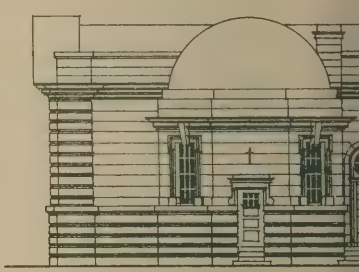


EAST ELEVATION

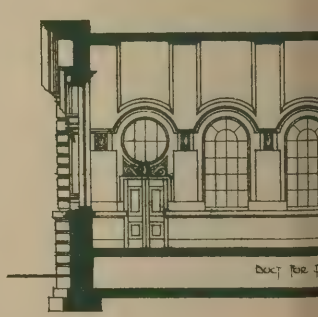


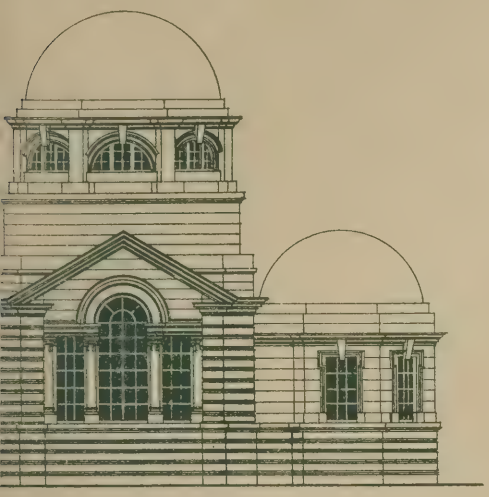
NOTES.
WALLS TO BE BUILT WITH LOCAL STONE. FACE AND PIERS EXTERNALLY TO BE V JOINTED.
BARREL VAULT OVER NAVE TRANCEPTS AND CHOIR TO BE CONSTRUCTED WITH CONCRETE WITH WOOD FRAMING OVER. COVERED WITH LEAD.
DOMES TO BE CONSTRUCTED WITH STONE WITH IRON BAND MOUND DRUM.
INTERNAL FACES OF WALLS TO BE PLASTERED, COLOURED AND ENRICHED IN PARTS.

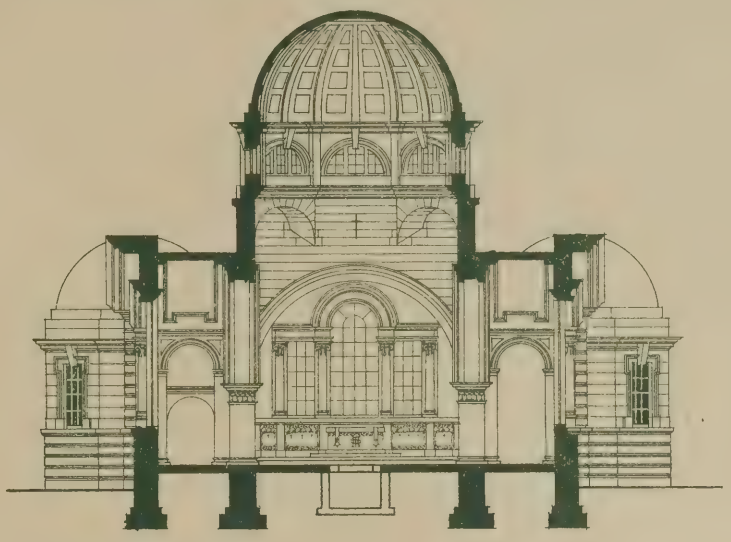




NORTH ELEVATION.



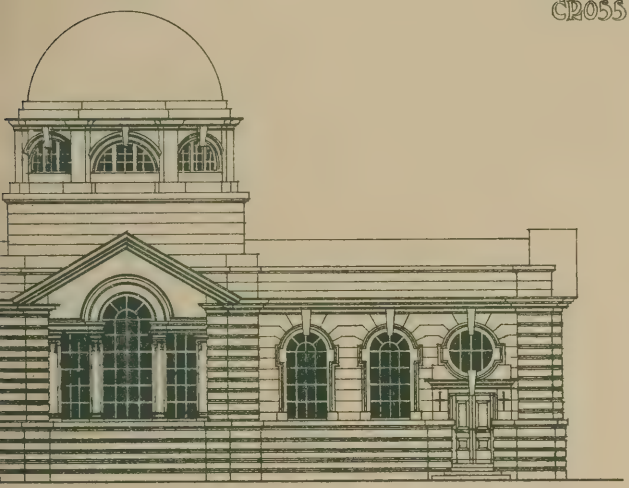


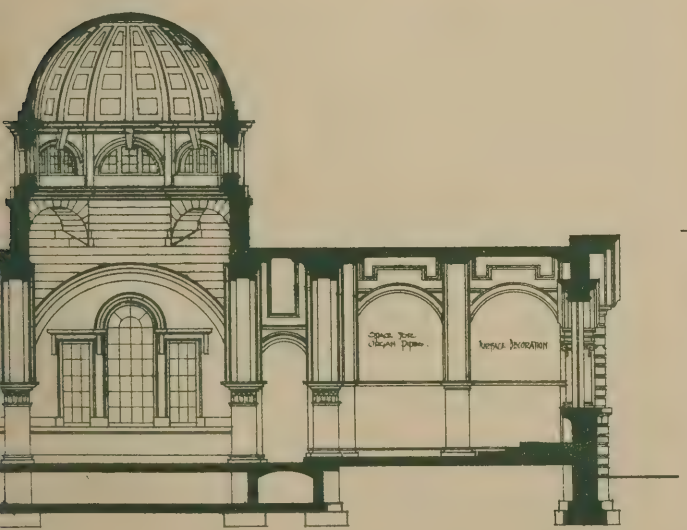


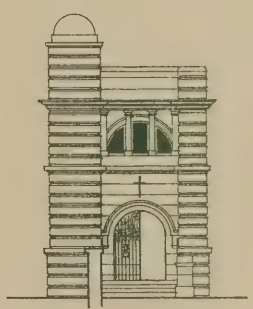
CROSS SECTION.

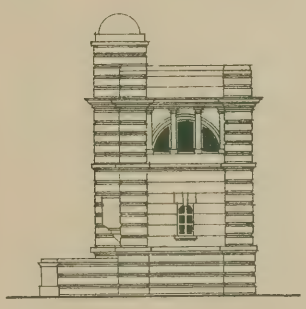
DESIGN FOR A CHURCH TO SEAT 200 AND PRIVATE MEMORIAL CHAPEL.

ON A COUNTRY ESTATE. ADJOINING THE MANSION.

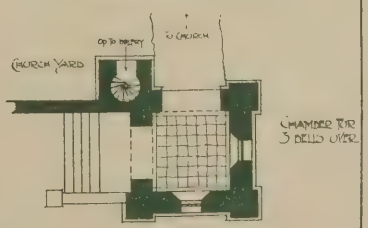








TOWER AND GATEWAY ON NORTH SIDE.



W. HOLTZMAN TWIST Inv. ET DEL

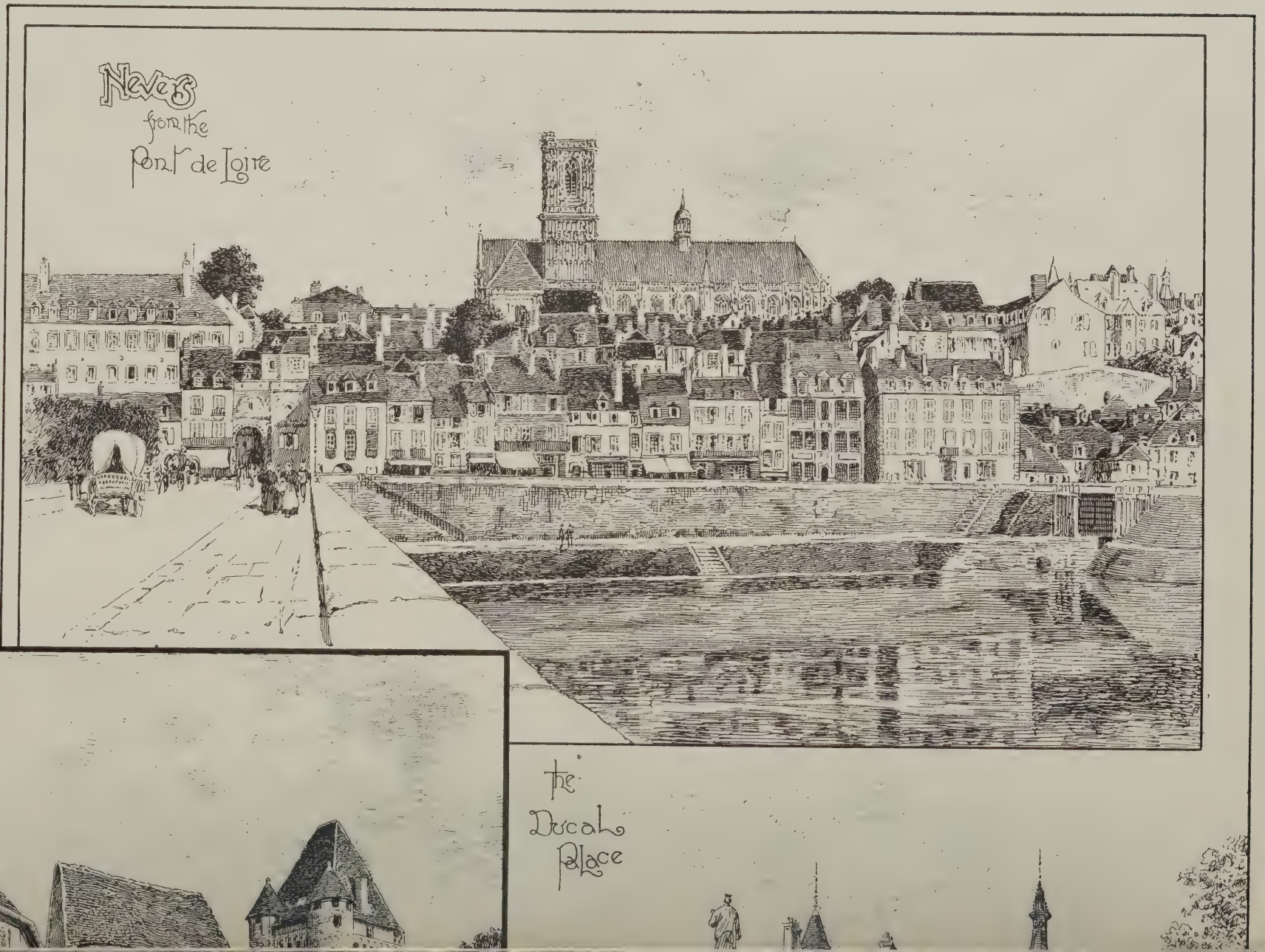
"PHOTO-LITHO." R. J. EVERETT & SONS, 56 LUDGATE HILL, E.C.

ION TRAVELLING STUDENTSHIP, 1902.

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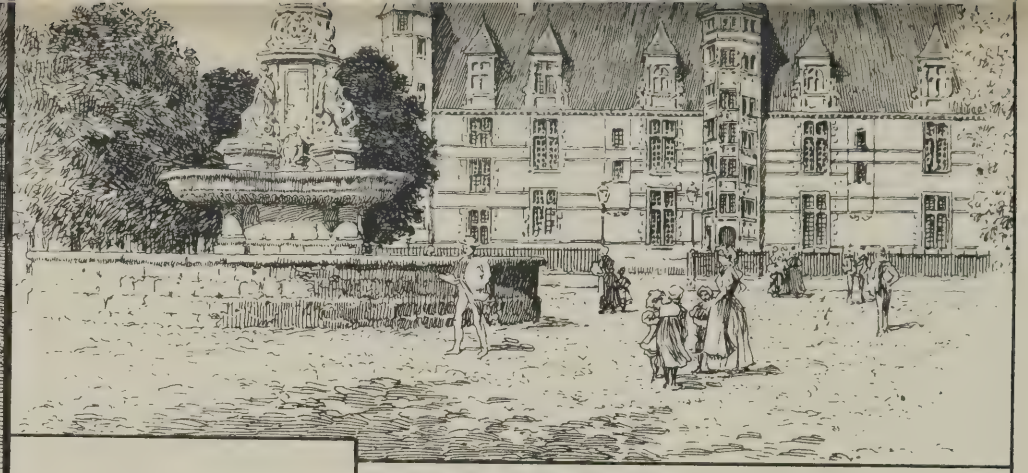
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The Porte du Croux





Place Rosse



The Tour Gogum

Percy Wadham A.R.E

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Builders' Notes.

The Sheffield Master-Painters and Decorators held their opening meeting of the winter session last week, when Mr. A. Jeffrey read a paper on stained glass in decorations.

The Wall-Paper Manufacturers, Ltd., have made a profit of £230,914 for the year ending August 31st, 1902, to which has to be added £25,776 brought from last year's account. After paying interest on Debenture stock, the following dividends have been made: 5 per cent. on Preference shares and 8 per cent. on Ordinary shares; while £30,000 is carried to the reserve fund and £51,171 carried forward to next year.

The Lancashire and Yorkshire Railway Company give notice that before the close of next year the whole of the passenger train service on the Liverpool and Southport line will be worked electrically and considerably increased and expedited, and the short service between Liverpool and Blundellsands will be extended to Hall Road, with the object of enabling builders and others who are desirous of erecting houses in the district served by the railway to complete their work by the time the new electrical trains commence to run.

L.B.A. and "Single Buildings": Important Case Set Down for Argument.—At last week's meeting of the London County Council the Building Act Committee brought up the following report:—Since October, 1900, we have had before us various proposals made by Mr. C. W. Matthews for the erection of blocks of residential flats upon a site in West Hill, Highgate. The earlier proposals, in our opinion, involved the formation of a street, and Mr. Matthews was informed that if he proceeded with them without the consent of the Council, proceedings would be taken. Eventually, in order to obviate the difficulty as to the formation of a street, Mr. Matthews determined to erect what he described as one block of buildings approached directly from West Hill, and extending back practically the whole depth of the site, a distance of about 600ft. Although described as one building, the plans indicated what were, in our opinion, several blocks of buildings united by openings in the party walls between the various blocks. The buildings were planned to contain about thirty-two suites of flats, each of the suites, with a few exceptions, containing six rooms, together with a bathroom and offices. Mr. Matthews having commenced to carry out the scheme, the district surveyor served a notice of objection under section 150 of the London Building Act, 1894, and Mr. Matthews having appealed to the magistrate, we instructed the solicitor to render the district surveyor legal assistance in upholding his objection. The appeal was heard at the Marylebone Police Court on June 5th last. The magistrate came to the conclusion that Mr. Matthews was proposing to complete the whole structure as a single building so as to avoid any possible contravention of the provisions of the London Building Act, 1894, relating to new streets, and allowed the appeal with £10 10s. costs, but agreed to state a case for the decision of the High Court. A case has accordingly been stated and set down for argument. The point at issue is one of considerable importance, and we recommend that the solicitor be instructed to take all necessary steps for obtaining the decision of the High Court.

The International Fire Exhibition.—On Wednesday last at the Royal United Service Institution, Whitehall, the Duke of Cambridge presided at a meeting convened by the British Fire Prevention Committee in connection with the International Fire Exhibition which is to be held at Earl's Court next year from May to October. The Duke of Cambridge, in opening the proceedings, said that as sanitary measures had been very successful, he hoped that, in the same way, the measures taken against fire would be equally advantageous to the public. They had had some very severe instances of late which had pointed to the necessity for an improvement of fire-prevention measures, and he trusted that the meeting would be the beginning of an era of improvement in that respect. Mr. Sachs explained the objects of the exhibition, particulars of which have already been given in these columns. Major Fox (president of the National Fire Brigades' Union), Mr. Thomas Blashill (late superintending architect to the London County Council), and Sir Herbert Perrot (chief secretary of the St. John Ambulance Association) expressed their intention to support the exhibition as much as they could, Mr. Blashill observing that the first thing he hoped they would attend to would be the prohibition of the use of combustible materials in places where they were likely to lead to loss of life and property, for incombustible material was not as expensive as it was believed to be; he urged that more attention should be paid to bringing old buildings into line with modern constructions. Mr. P. Cremieu Javal (chairman of the Executive of the Exhibition) announced that among the various institutions abroad that had promised their co-operation and attendance at the Congress, if invited, were the Grand Central Council of Fire Brigades, the International Association of America and the Fire Brigade Federations of Russia, Italy and Austria. After the usual vote of thanks the proceedings closed.

A TRIBUTE TO THE LATE MR. W. S. HICKS.

At the opening of last week's meeting of the Northern Architectural Association, held at Newcastle, Mr. Frank Caws (the president) referred with deep regret to the death of Mr. W. S. Hicks. He held in that city, in the North of England, and, indeed, in a much wider sphere, a very high position—one of the very highest positions—as a church architect, and in that respect they all held him in the highest esteem. But when they had said that, when they had examined and expressed admiration for his works, for their excellence and their beauty, there still remained to be said what they felt most deeply about the man himself. He (Mr. Caws) therefore thought that some fitting expression of their admiration for Mr. Hicks' character should be entered upon the minutes. His was no ordinary character. All who had come near him, and had been privileged with his acquaintance, must have felt that in him they had one whose character was so gentle, so high, and in every way so exemplary that they as an Association might well feel proud to have such a gentleman among them as one of their members. "That which made men great in England was not their cleverness, but their character." They, as architects, had their trials, and there was no profession, he thought, more calculated to try the soul of a man than that of an architect. By the time a man came to the end of his life as an architect, depend upon it he would be pretty well disciplined, and those of them who knew what those trials were, and how difficult it was to steer a straight course and come honourably through the battle, could admire all the more the life of him who had just been taken so suddenly from them. He was a bright example they all might well follow.—It was unanimously agreed to enter a memorial minute as suggested by the president.

Keystones.

A Stained-Glass Window is being placed in Bagshot Parish Church to commemorate the life and reign of Queen Victoria.

Mr. Walter Cambell, architect and surveyor, of Glen Ewart, Worsley, and 57, Deansgate Arcade, Manchester, has been made a bankrupt.

A new Fire Station in Euston Road, close to the London and North-Western terminus, and within easy reach of the Midland and Great Northern termini at King's Cross, was opened last week. It has been erected at a cost of about £14,000.

A Memorial to Mr. Bentley.—Mr. Leonard Stokes states that, though the Royal Institute of British Architects has not officially proposed to place a memorial to the late J. F. Bentley in the new Westminster Cathedral, such a project is on foot amongst architects, and has received the individual support of several members of the Council.

Discovery of a New Greek Temple.—The excavations undertaken by Dr. Rudolf Hertzog, Professor at the University of Tübingen, in the Island of Kos, have led to the discovery of the Temple of Æsculapius. The building is of marble 30 mètres long and 17 wide. The interior was converted into a Christian church, the altar and cross of which have now been brought to light. Some interesting inscriptions have been found, as well as a fragment of a marble bas-relief representing the goddess Hygeia with a large snake.

At Dublin Castle a new covered bridge has been erected to connect the furniture store with the State apartments in order to facilitate the supply and removal of furniture during functions connected with the Castle season. The old bridge was a temporary wooden structure without any covering, and was too narrow for the requirements. The new bridge has been built of concrete and iron, is much wider than the old one, and, being covered, prevents draughts and forms a protection for attendants.

The Glasgow and West of Scotland Technical College Architectural Craftsmen's Society.—At the fourth meeting of the session, held last Friday week (Mr. C. Ernest Monro in the chair), Mr. James McKissack, architect, delivered a lecture on "Early French Renaissance Architecture," illustrated by a fine series of fifty photographic views of the chateaux of the Loire Valley taken by the lecturer during a visit to the Continent last year with a sketching party of architectural students. On the motion of Mr. Arthur a hearty vote of thanks was accorded Mr. McKissack.

A Church at Trim, Meath, dedicated to St. Patrick, has been erected in the Early Decorated Gothic style. It comprises sanctuary, nave, transepts, side aisles, side chapels, nuns' choir and two sacristies, and heating chamber. The total length of the church inside is 137ft. 8in., and the width across transept 77ft.; height from floor to ceiling, 50ft. The walling generally and cutsone throughout are of Irish limestone; the roofing, &c., of pitch-pine. The high altar is of Sicilian marble generally, with coloured marble shafts, and sculptured groups in statuary marble. The church was designed by the late Mr. W. Hague, architect, of Dawson Street, Dublin, and the shell of the building carried out under his superintendence. After the death of Mr. Hague the work was entrusted to Mr. William H. Byrne, F.R.I.A., architect, 20, Suffolk Street, Dublin. Mr. Patrick Nolan, of Monaghan, was the builder. Messrs. James Pearse & Son, of Great Brunswick Street, Dublin, were contractors for the high altar.

Mr. William G. Pengelly Andrew, an architect, twenty-four years of age, was found dead on the South-Western Railway at Cosham, Hampshire, last week.

Wrexham Parish Church has just been restored at a cost of £10,000. The north porch has been restored solely by members of Yale University, in memory of the founder, whose body lies close by.

A Competition for Artisans' Dwellings.—The Armagh Urban District Council have awarded the two premiums of £20 and £10 for plans for artisans' dwellings in Armagh to Mr. M. J. Dorney, 16, South Anne Street, Dublin, and Mr. W. W. Larmour, B.A. A.M.I.C.E., Banbridge, respectively.

The Ventilation of Factories.—The Home Secretary, in reply to a question in the House of Commons last week, said the first report of the Departmental Committee appointed to enquire into the ventilation of factories and workshops was receiving very careful consideration; and, as a preliminary to deciding what action shall be taken on it, he is having further trials made of the proposed new method of testing the atmosphere in factories.

The Universal Exposition, St. Louis, 1904.—Germany will take part officially in this exhibition. At the Chicago Exhibition of 1893 Germany expended about 800,000 dollars (£160,000) upon its buildings, its official display, and as an aid to the manufacturing and commercial features. Thus far no announcement has been made of the sum likely to be set aside for use at St. Louis; but from assurances given by the Emperor, that for the purpose of illustrating every phase of its artistic, manufacturing, agricultural, and industrial development Germany would make at St. Louis the finest exhibit ever shown from that country, the conclusion has been reached that at least 4,000,000 marks (£200,000) will be set aside for this purpose.

A new Church at Dundee is proposed to be built in Well Road, Hawkhill. The building is cruciform on plan, consisting of a nave 142ft. in length, with two aisles of the same length and two transepts. The roof of the nave and chancel is continuous 56½ft. high. A special feature of the interior is the stone arcading between the nave and aisles. The main external feature is the tower, 134ft. in height, surmounted by a fine stone crown. The church is designed in a simple but dignified Scottish Gothic style of architecture, suited to the hard stone found in the vicinity of Dundee. It will seat over 1,000 persons, and is estimated to cost at least £10,000. Messrs. Blackadder & Allan, of Dundee, are the architects.

St. Augustine's Abbey.—The excavations recently made on the site of St. Augustine's Abbey, Canterbury, have brought to light a further portion of the crypt, extending westward from the three apsidal chapels. The south wall is in a state of remarkable preservation above the spring of the arches, and also the remains of some fourteenth-century windows. On the inner side of the ambulatory are the foundations and rubble, to the height of 10ft. or 11ft., of five massive pillars, additional to and in continuance of those discovered last year. Two staircases lead from the choir to the crypt on the north and south side of the eastern piers of the great central tower. The plan of the chapter-house has been revealed, and on the east and north sides are the remains of the stalls of the abbot, prior, sub-prior, and other monks. A considerable part of the flooring is still existing, with coloured and patterned tiles, and there has been unearthed enormous quantities of worked ashlar, carved marble fragments, together with gilded pinnacles and figureheads.

New Urban Council Offices at Fenny Stratford have been erected of red brick and white Portland stone. The architect was Mr. J. Chadwick, Bletchley, and the builder Mr. Tranfield, Stantonbury.

Radley College.—The Council have decided to proceed with the extensions (new house, dormitories and tower) as designed by Mr. A. H. Ryan-Tenison, A.R.I.B.A., 12, Little College Street, Westminster. The tender of Mr. Hutchins, of Oxford, has been accepted, and the cost will amount to about £8,000.

Society of Architects.—The following elections have been made:—As Members: Messrs. B. D. Cancellor (Winchester), P. H. P. Haigh (Harrow), N. Austin Leech (Norwich), C. H. Mead (London, W.), T. Overbury (Cheltenham), W. Teather (Cardiff), C. L. Wilson Cardiff) and J. Wills (Derby). As Students: Messrs. H. J. T. Gowen (Norwich), H. P. Milne (Tewkesbury) and J. E. Todd (Southsea). The Society's balance-sheet for the past year shows a surplus of £400 and a reserve fund of £700.

The Remains of a Roman Residence have lately been unearthed in the village of Fifehead Neville, in Dorsetshire. In the village is a brook crossed by an ancient footbridge in stone, which is believed to be of Roman origin. Close to the bridge are being brought to view, under the direction of Mr. Wingfield Digby, of Sherborne Castle, remains of a Roman residence, with indications of others adjoining, probably the residence of a Roman magistrate. A beautiful mosaic pavement has been uncovered, and adjoining it have been found a bath, numerous walls, flues, nails, bits of pottery, &c. The walls and floors were only 18in. below the surface of the ground.

The Church Crafts League held its annual meeting last week. The Bishop of Rochester, who presided, moved the adoption of the report. He thought that the increase in the number of members showed that the League was growing in importance. The object of the League was to infuse a new life into the building, decoration and furnishing of the churches, and to bring those who were directly responsible for these things into direct contact with craftsmen of assured merit. During the past twelve months there were 143 applications for advice, as against 85 last year. The Bishop of Rochester was re-elected president of the League. Mr. J. T. Micklethwaite then delivered a lecture on "The Growth of an English Parish Church."

Edinburgh Castle.—The report of the twenty-sixth annual meeting of the Cockburn Association states, with regard to the erection of new officer's quarters at the Castle, that a meeting of the Edinburgh Architectural Association, the Cockburn Association, and the Scottish Art Club expressed disapproval of the plans on general and technical grounds. At a meeting with representatives of the Town Council held in March last, Mr. Kerr, of the Architectural Association, put forward the various objections which had been raised to the plan, and the town clerk was instructed by the meeting to write to the War Office asking them to forward the plans in order that they might be reconsidered. The War Office acknowledged the letter, and, took no further steps, and it was understood that their scheme was in abeyance for the present. Further erections of buildings on the sky-line might result in dwarfing the massive appearance of the rock itself. On the other hand, the general effect of the castle might be greatly improved by a substantial addition to its altitude, dwarfed as it had been by unsightly buildings in Princess Street and at the Caledonian Railway Station. The Architectural Association had offered its services gratuitously towards securing an effective design.

St. James's Hall is to be demolished, together with a number of neighbouring properties in Air Street and Vine Street, to make way for a vast hotel, far bigger than anything of the kind existing in London.

Lombard Street Signs.—The Corporation of London have referred the report of the Streets Committee recommending the removal of those old signs in Lombard Street overhanging the public thoroughfare which were put up for the Coronation back to the committee for reconsideration.

St. Felix School for Girls, Southwold, has been recently erected from plans by Mr. Arnold Mitchell, F.R.I.B.A. The dormitories are built on the most modern plan, each pupil having a cubicle of her own, containing a separate bed and wardrobe, while each cubicle has its own window, the whole being warmed by radiators. The premises were opened with the September term.

A Crimean Tomb.—At Kerch, in the Crimea, a tomb dating from the second or third centuries of our era has been discovered. It is vaulted, and the entrance is protected by a stone slab bearing a carving of a Medusa's head. A stone gallery of large-sized slabs leads out of a chamber containing four sarcophagi, and it is hoped to discover a further secret chamber, with which purpose the excavations will be continued. The floor of the tomb and the sides are built of large stone slabs, and there are traces of painting still visible.

A Reredos by Mr. S. J. Nicholl.—The altar in the chapel of the Sacred Heart, in St. Charles' Church, Upper Ogle Street, London, commenced in 1863, has now been completed by the erection of the reredos from the design of Mr. S. J. Nicholl, the architect of the entire work. The reredos forms a screen the entire width of the chapel, rising to the springing of the vaulted ceiling, and comprises statues of our Lord and four angels bearing the emblems of the Sacred Passion enclosed in tabernacle work with accessories. The work was executed by Mr. A. B. Wall, of Cheltenham.

A new Church at Barnsley has been consecrated at Kingston Place. The church is in the Early English style, from plans by Mr. Goodwin Packer, of Southport. There are four bays with granite columns dividing the aisles from the lofty nave, which is lighted by five-light windows on the east and west, with clearstory lights at the sides. The chancel is 40ft. by 20ft. and 34ft. high. The flooring is of mosaic. The choir stalls are of oak, richly carved. A tower erected over the chancel rises to a height of 94ft. Classrooms are provided under the chancels A feature of the church is a reredos of polished English alabaster and Irish and Italian marbles. The church will seat 400 persons.

Almshouses at Newport, Mon., are being erected on Stow Hill. They are arranged in the form of a trapezoid, with the base left open, the centre being occupied by a lawn. The houses are to number eventually nine, but six only are as many as the present state of the funds will admit. The buildings are one storey in height, and provide sitting-room, bedroom, scullery, coalhouse, pantry, &c., for each inmate, with a covered-in porch at the entrance. The buildings are being constructed with local bricks, having Star brick facings, relieved with Bath-stone dressings, and are designed in the Georgian period of English Renaissance. The flooring will be laid with wood blocks and red tiles. Messrs. Jewell & Sons, of Barrack Hill, Newport, are the contractors for the first section at the sum of £1,400. Each house will cost, including boundary walling, draining, levelling of site, &c., £230. The architects are Messrs. Habershon, Fawckner & Groves, of Newport and Cardiff.

BUILDING CONSTRUCTION.—III.

[By Our Special Contributor.]

(*Continued from p. 244, No. 407.*)

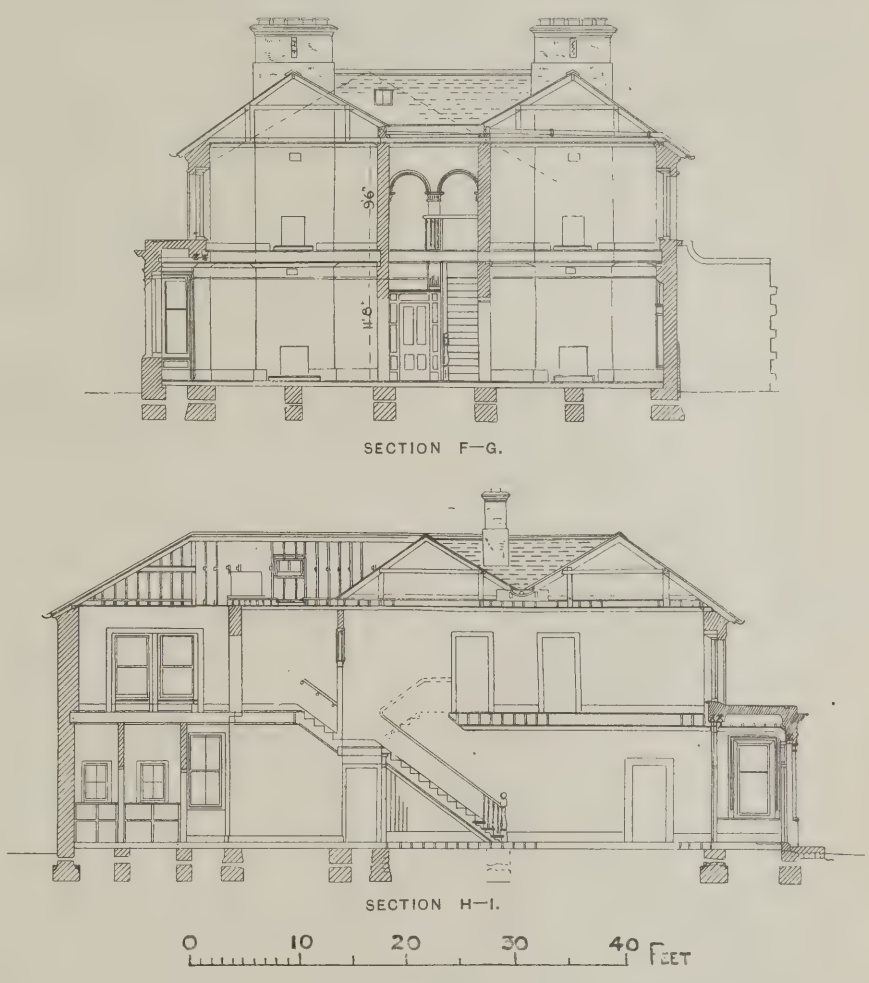
ASSUME that the building of the walls has proceeded to over the level of the ground floor, and that the appearance is fairly represented by the ground-plan drawing. The attention of South Kensington students is here drawn to a new clause in the syllabus: "In the 1903 examination, and afterwards, students will be required to make an inked tracing of a portion of a drawing, the lines being very uniform and continuous, and fairly thick, such as would be useful for a blue print." Referring to the drawings for our house: they were prepared by an assistant who is no longer with me. I consider him an exceptionally judicious draughtsman, very painstaking, neat in his work; he did all his writing in very neat engrossing characters; this may appear to be unnecessary eulogy, seeing that the drawings are reproduced, but the copy reproduced was made by a junior office hand, and it does not show the fine work of the original. Now, drawings should be carefully done for several reasons. They are more likely to be accurate when neatly done; they are more respected both by the proprietor for whom one works and by the contractor and workmen. The "office" should have a character for neatness and accuracy in drawings as well as everything else; but time should not be *wasted* upon them—they should not be more elaborate than necessary for their purpose.

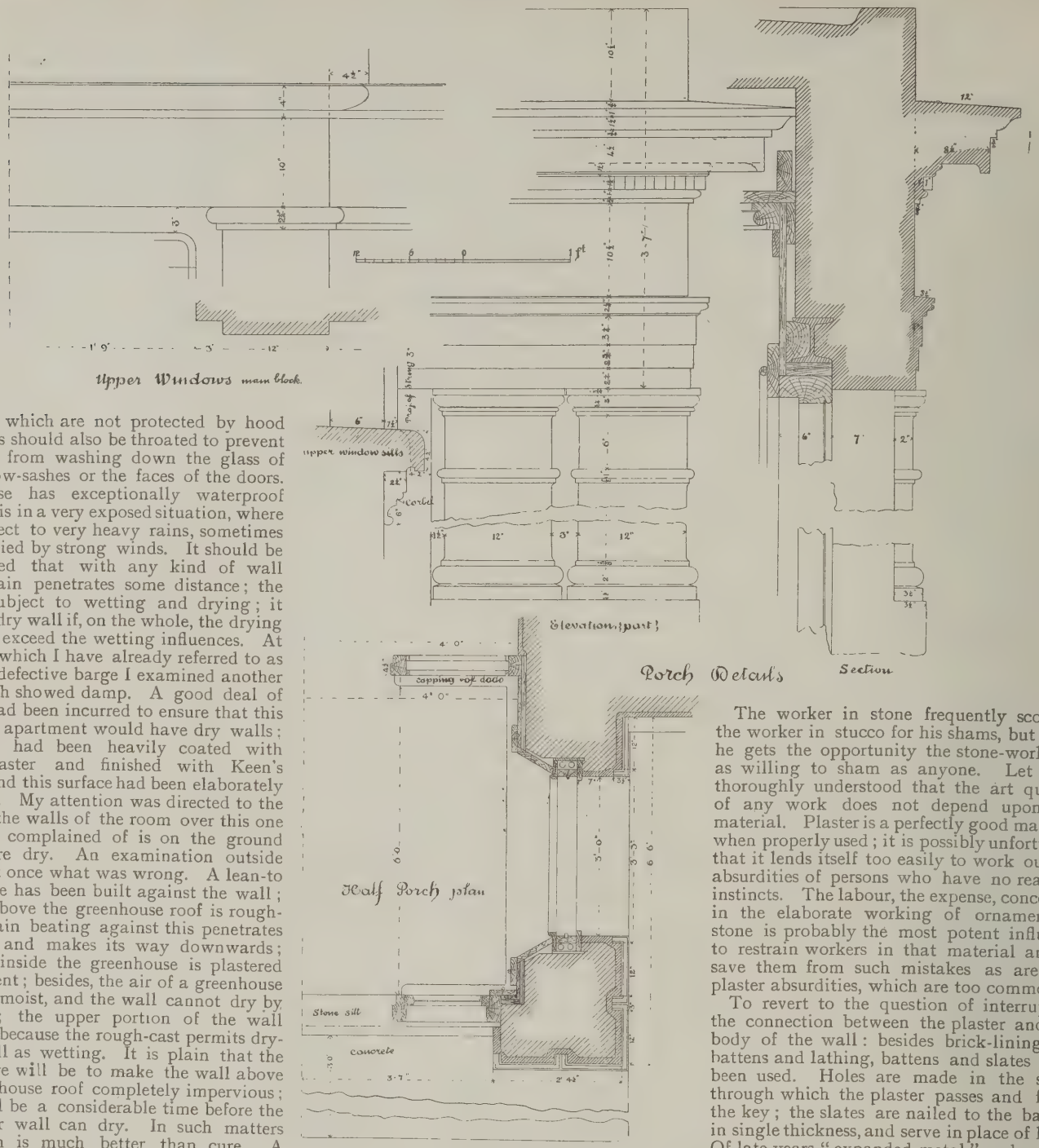
The Plans.—Windows are marked conventionally; doors are not shown. It is probably advisable to indicate the doors by lines placed to show the side on which the door is hinged and the direction of opening. Hearths are shown and curb fenders; grates are not attempted to be shown; the battening of walls is not shown; it was advisable to indicate the shelving in scullery, &c., and the positions of sinks. The plan gives no indication of the material of the floors. The same remarks apply to the first-floor plan.

The Elevations.—More work is put upon the elevations than is necessary for the direction of workmen, but the extra work is needed to give oneself and the owner a fair idea of how the house will look when it is built, and the draughtsman's time is well spent on this work. An orthographic projection is not a picture; for large and important works perspective drawings should be made, and it should be remembered these also are not pictures. Architects' perspectives as a rule are only decorative in a business way; they are appropriate on the walls of the office; few of them could with propriety be hung in dwelling-houses. The art of architecture does not dwell in the perspectives in the same way as there is art in the sculptor's clay model or the painter's studies. Office perspectives bear to pictures in some degree the same relation that tailors' fashion plates bear to pictures. I say in some degree. I have no desire to express any contempt for architects' perspectives; I fully appreciate the good work done by this journal and the other publications of Effingham House, both in the reproduction of architects' perspectives and the gradation of work of this kind into really artistic sketches of existing buildings. I refer to this matter because I have it repeatedly forced upon my notice that many young men have apparently mistaken notions in respect to it: lines that should meet and stop at an angle are run carelessly through the point at which they should stop, and then some attempt is made to give form to the chequer-work of lines by untidy washes of colour. The writing and figures on architects' drawings are usually not as good as the writing and figures on engineers' drawings. It is comparatively easy to learn to write neatly; the use of the letters is to be legible: why are illegible forms used? They do not convince one that the writer could be neat and clean if he tried to be so. Writing should be done expeditiously; it will be clearer and neater if done with as little "painting" with the point of the pen as possible. If the student is inclined to improve his first stroke, he had better wait till his first ink dries, because muddling in damp paper with a pen-point stirs it up untidily.

The elevations show a plinth which reaches to the height of the sills of the window-frames, finished smooth in cement. It cannot be too frequently insisted upon that cement-work should be finished off "green," and as nearly as possible homogeneous. A skimming of neat or nearly neat cement on top of cement gauged with a considerable proportion of sand, especially after the first coat has stood for some time, is bad; it will almost certainly peel off. There are few situations in which it is advisable to use neat cement; for nearly every purpose it should be gauged with clean sharp sand. The idea must be got rid of that sand is added to cement solely for economy; it is not so; sand fulfils the same purpose when added to cement that it does when added to common lime. Yesterday I was brought to examine a leaky barge; the slates had been let into a groove in the barge stones in the usual way; the groove had not been filled in with sufficient care, but particularly at a recent mend with neat cement the cement had cracked by contraction of the mass (just as common lime-putty would crack, but to a less degree): the quality of contracting, on being wet, possessed by clean sharp sand is of the utmost value in mortar. The plinth was finished off as soon as built, and it was protected from falling mortar just as a cut-stone plinth would be. It was prepared of the proper shape for the sills of the window-frames. Portland cement-work cannot be painted for at least a year; linseed oil is saponified by fresh cement-work, and it is not a good plan to bed window frame wood sills upon cement sills in oil and white lead, as is commonly done where wood sills are set on stone sills. I find that it makes a perfectly good water-tight job to bed these wood sills on the finished concrete sills with a joint of fine sanded cement-mortar of composition, say, 1 of cement to 2 of fine clean sand. The bow window and the porch were finished smooth, as shown, and the mouldings were stuck in the usual way by a plasterer; the quoins and facings were built with moulded blocks as already described, and the rubble masonry was worked in between. The string at the bottom of the first-floor windows was completed just as the plinth was, weathered at the windows and prepared for the window frames. The concrete sides of these windows were formed in moulds *in situ* finished off "green"; the frieze and mouldings at the eaves were also finished at once. Care was taken to leave neat holes for joists and to build in sufficient wood plugs for the battening of outside walls. These plugs have their larger ends in the walls, so that when they dry and shrink they do not draw out. The chimney-stacks were formed in concrete *in situ*, and the surfaces were finished off "green."

It will be noticed that the main chimney-stacks have each an extra chimney pot, and that there are rectangular marks; these extra flues are for ventilation and the details are shown on p. 243 of the last week's issue of this journal. It is important that in all cornices, projecting strings and copings there shall be throatings or the equivalent of throatings. The reveal soffits of windows





and doors which are not protected by hood mouldings should also be throated to prevent rainwater from washing down the glass of the window-sashes or the faces of the doors. Our house has exceptionally waterproof walls; it is in a very exposed situation, where it is subject to very heavy rains, sometimes accompanied by strong winds. It should be remembered that with any kind of wall driving rain penetrates some distance; the wall is subject to wetting and drying; it will be a dry wall if, on the whole, the drying influences exceed the wetting influences. At the place which I have already referred to as having a defective barge I examined another wall which showed damp. A good deal of expense had been incurred to ensure that this particular apartment would have dry walls; the walls had been heavily coated with cement-plaster and finished with Keen's cement, and this surface had been elaborately decorated. My attention was directed to the fact that the walls of the room over this one (the room complained of is on the ground floor) were dry. An examination outside showed at once what was wrong. A lean-to greenhouse has been built against the wall; the part above the greenhouse roof is rough-casted; rain beating against this penetrates the wall and makes its way downwards; the wall inside the greenhouse is plastered with cement; besides, the air of a greenhouse is always moist, and the wall cannot dry by this face; the upper portion of the wall keeps dry because the rough-cast permits drying as well as wetting. It is plain that the proper cure will be to make the wall above the greenhouse roof completely impervious; but it will be a considerable time before the wet lower wall can dry. In such matters prevention is much better than cure. A lesson to be learned from this instance is that when the face of a wall is made water-tight it not merely keeps water out but it retains any that may have got inside, either the water of the original mortar or that which may enter by any crevice in its upper parts. It is not unusual to line the inside faces of stone walls with brickwork, instead of battening and lathing—this is successful in proportion as the bricks are of a light and porous kind. The thickness of such porous brick-lining should not be calculated upon as adding to the strength of the wall. Walls built for show, having a very thin ashlar facing and backed with brickwork, are as a rule weak walls. Good showy work can be done, showing ashlar outside and rubble inside, if built with good cement-mortar, but not otherwise; if built with common lime-mortar the rubble backing yields to compression at a different rate from the face work, its bearing power is very much less, and the wall is weak—weaker than an all-rubble wall. It should be remembered that walls are in constant motion: in towns every heavy waggon passing along the street makes the houses shake, and every tremour has a lasting effect. Take the case of a continuous vertical joint in a frontage where two houses meet but the walls have not been bonded together: such a joint opens at the top, and as time goes on the opening widens, as if the houses were pressed asunder by enormous forces. And so it is; slight tremours cause small particles of friable mortar, &c., to drop down; accumulations of these wedge the walls apart, just as, when quarrymen "bar" out a large block from its bed, they place fragments in the opening, these drop down and keep what the crowbars gain. The putting in of bonders does not tie the houses together; their duty is to break the vertical joint, so that small particles of sand and mortar cannot drop past them. In the very best class of masonry, where the inside face is carefully finished (often more carefully than the outside face), there is, of course, no question of battening and lathing. Work of this kind rarely comes into the practice of the "general practitioner" architect. Internal wall-surfaces, when pretentious, are, as a rule, shams; they may be veneered with marble.

The worker in stone frequently scoffs at the worker in stucco for his shams, but when he gets the opportunity the stone-worker is as willing to sham as anyone. Let it be thoroughly understood that the art quality of any work does not depend upon the material. Plaster is a perfectly good material when properly used; it is possibly unfortunate that it lends itself too easily to work out the absurdities of persons who have no real art instincts. The labour, the expense, concerned in the elaborate working of ornament in stone is probably the most potent influence to restrain workers in that material and to save them from such mistakes as are the plaster absurdities, which are too common.

To revert to the question of interrupting the connection between the plaster and the body of the wall: besides brick-lining and battens and lathing, battens and slates have been used. Holes are made in the slates through which the plaster passes and forms the key; the slates are nailed to the battens in single thickness, and serve in place of laths. Of late years "expanded metal" and various patterns of perforated metal sheets have come into use for the same purpose. In choosing one of these different methods the architect is influenced by the comparison of cost and comparative permanence in wet situations. Laths and battens rot, but in such situations iron will rust; slate-lathing is permanent, but the battens to which the slates are nailed and the nails are not permanent. It may at once be said that wood-lathing will not do for absolutely damp situations; it will not do for outside work, where expanded metal and cement stucco are apparently successful. I have just completed extensive alterations in a public building built ninety years ago. Great care had been taken to batten and lath all the walls (inside walls as well as outside walls), and I found this work all in very good condition. I must not, however, proceed with plasterer's work before its time.

In regard to the cost of this kind of masonry, we have discovered, by the experiment described in a previous article, that 3 bushels of Portland cement and 9 bushels of clean sharp sand make 8 bushels of cement-mortar. Portland cement delivered at this site cost

2s. 6d. a bushel; sand, say, 2s. 6d. a cubic yard; so that 1 to 3 mortar cost for materials (water free):—

	£	s.	d.
Sand, say - - - - -	0	3	0
Cement, 10 bushels at 2s. 6d. -	1	5	0
	£1	8	0

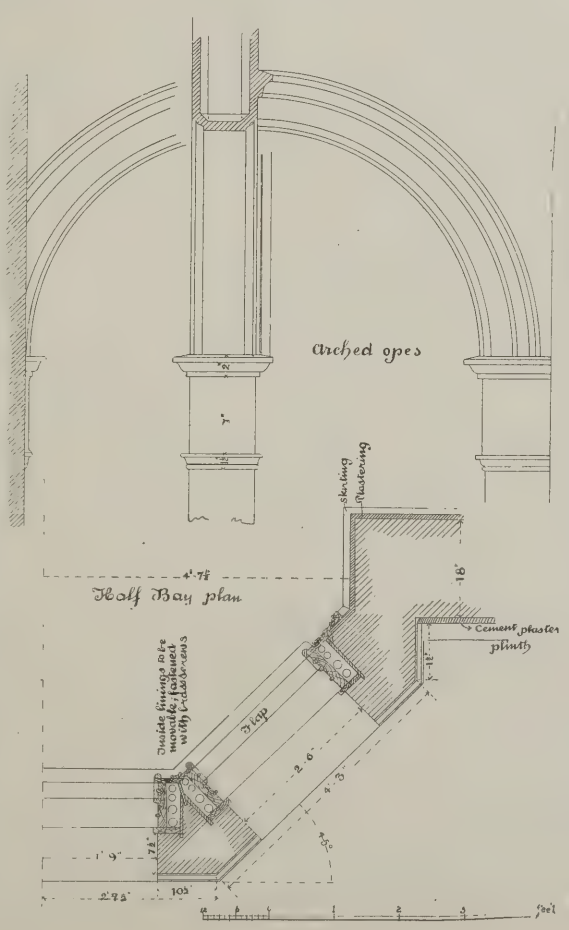
The work was not done with mortar as rich as this. I have explained in a former article the value of using an aggregate for concrete whose constituents are of various sizes; the same advantages are obtained in a less degree if the particles of sand in cement-mortar are of various sizes. It was possible to add as much coarser sand to the above as made the cubic yard of mortar cost about £1 2s., adding 2s. for labour. A cubic yard of mortar should build from 4 to 5 cub. yds. of masonry, say, 4½ cub. yds., say 5s. a yard for mortar; stones were quarried quite near and cost, say, 2s. 6d. a ton, say, 5s. per yard of masonry; labour, 6s. a yard; total per cub. yd., 16s. The moulded quoins and dressings cost about 2s. per cub. ft.; the facing of the plinth and other flats cost 2s. 6d. per sq. yd.; the mouldings, &c., were done at prices which I may refer to in plasterer's work. Students will do well to compare the cost of this work with the cost of equivalent work (possibly in bricks) in their particular localities. It should be remembered that the material influences the modes in which details are worked out; and one would not be likely to reproduce this house exactly to the drawings, as shown, if it were built of bricks; for example, the porch shown could not be easily or appropriately executed in brickwork.

For a house of this kind elaborate scaffolding is not needed: for the ground-storey casks and planks carry the masons up to the string at the first-floor windows. The first-floor joists are put in as soon as the walls are raised to the proper height; and from these casks and planks, scaffold to the top of the wall. The outside scaffolds are continued, partly, from high trestles, and also by planks on edge run out from the openings (windows) as cantilevers or propped from the ground at the ends.

The whole of the timber (with the exception of the newel and handrail of stairs, &c., and the sheeting of floors) used in this house is pitch-pine timber, which happens to be the most easily obtainable log timber in the locality. Pitch-pine is imported from the Southern States of the United States of America, chiefly from the ports of Savannah, Darien and Pensacola. It is a good timber for house-carpentry and joinery, but care should be exercised to exclude sap-wood and other defective portions from the work. It is excellent for flooring, but we get flooring cleaned, tongued and grooved and ready for laying from the Baltic; if we use pitch-pine for our flooring we must prepare it from the log, which it is not easy to do in the locality. See that the timber is free from large knots, from dead knots, from shakes and from decay of any kind. It is perfectly easy to judge timber when it is cut into scantlings. The timber merchant, whose business it is to import timber and convert it into scantlings, should be able to judge it in the logs. It is also advisable that the architect and engineer should know the leading points; they cannot hope to know the timber trade in detail as well as a man who makes it his special business. The expert knowledge of the timber converter is ultimately at the service of the architect or engineer, who knows what he wants when he sees it sawn and prepared for his work; he ought to be able to recognise with reasonable certainty a sample of timber in the hands of a carpenter, its name and origin; and he should know with absolute certainty whether the sample is sound or unsound. I find it useful to have a frame of samples of varieties of timber hung up in my office. An hour's visit to the yard and sawmills of a good-natured timber merchant will do more to explain useful things about timber than several hours' study of brands and book explanations; the book may be consulted afterwards. In constructing any building I make it a point that in the event of the structure being attacked by fire the walls will not be likely to fall. This idea cannot always be attained, but with bad house construction most house burnings expose tassels and bond timbers (as they are called), reaching in some cases half through the walls; a wall cannot be a strong wall having its inner half resting on wood and its outer half bearing upon stone (possibly on ashlar face) or brick. Houses collapse when they ought not to collapse, and firemen and inmates are killed; but these are only accidental incidents of a construction which makes houses totteringly old before their proper time. Students are advised to keep an open eye in the houses in which they live, on the houses they see building, and while they learn to build they should learn to criticise. Different builders go wrong in different ways. The student will find what might be called "jerry" building everywhere; while he stands by these things let him make a note of them. In a recently completed large building I made a point of allowing no timber to enter any wall except the necessary plugs and blocks for the attachment of battens and trimmings. In the house which forms the subject of these articles the ground-floor joists do not enter the walls; they rest on the extra thickness, or footing, brought up their level; they also rest on "dwarf walls" 7ft. apart; a piece of tasselling 3in. by 1½in. is bedded on the wall or footing, and the joists bear on the tasselling. It is an advantage for the small bearing of the joist to be carried on timber which presents a large surface of timber to the wall; the joists are in this way less likely to fall away from the level from unequal decay at bearings, because decay is promoted by direct contact with the masonry if there is damp air to give moisture to the cool masonry. All care has been taken to have the air under these floors dry; the boggy soil has been cleared out to the bare compact rock, and the ground outside the walls has been well drained, wide trenches being dug all round and filled in with rough stones forming what is called a French drain of a very open kind (not of a kind, however, to provide harbour for vermin), and the space is ventilated by openings which are not close to the ground but appear at least 3ft. over the ground and are well protected from rain and from all possible admission of small animals. The joists are trimmed for hearths at fireplaces; they are 5in. by 2in., they are spaced 1ft. apart (from centre to centre), and they are kept in position by light strips of timber temporarily nailed across them on top.

As the drawings show, the first-floor joists are let into the wall, but no farther than necessary; they should rest on pieces of oak bedded on breeze-concrete, and they should not touch the masonry anywhere, but they should be free all round in their holes.

(To be continued.)



Masters and Men.

The Lock-out of Plumbers at Liverpool continues. About 200 of them have been locked out by the Master Builders' Association because of a dispute between Messrs. Tomkinson & Co., who are members of the Association, and their plumbers. The dispute is as to the interpretation of rules 6 and 7. The operatives struck, instead of first bringing the matter before the Joint Conciliation Committee of the Association; now they want to conciliate, but the employers insist that they shall first resume work, and as they refuse to do so the whole of the union plumbers in Liverpool and district have been locked out.

BRITISH SCHOOL AT ROME.

A MEETING of the general committee and subscribers of this School was held on Saturday. The report of the Executive Committee stated that the School had just terminated its first complete session as a working institution, and, on the whole, the results achieved were satisfactory. There had been many gifts to the library, which now contained upwards of one thousand works. The president said that the one weak point of the School was its finance, and Mr. MacKail, in moving the adoption of the report and the confirmation of the rules, said he thought it little short of a scandal that the subscribed funds of the society should be scarcely more than £500 a year. The School could never do its work properly in Rome without two directors—one to attend to archæological affairs and one to those of the Middle Ages. The resolution was carried. On the motion of Mr. Arthur Strong, seconded by Mr. G. G. Hogarth, it was agreed that the general committee be dissolved, and that the President of Trinity College, Oxford, be elected chairman, with the following gentlemen as a committee:—Prof. J. S. Reid, Dr. G. W. Prothero, Professor Waldstein, Sir Rennell Rodd, Mr. A. B. Cook, Mr. H. Haverfield, Mr. William Loring, Mr. G. A. Macmillan and Mr. A. H. Smith.

"LEADER SCOTT."

MR. THOMAS HARDY has contributed to the "Dorset County Chronicle" some "Recollections" of "Leader Scott" (Mrs. Baxter), whose death in Florence is announced. He says: "It was in Mrs. Baxter's company that I stood in the Piazza dell'Annunziata and gazed at the statue of the Grand Duke Ferdinand I., opposite the Palazzo Riccardi-Menelli, we having been led there by the famous lines:—

'There's a Palace in Florence the world knows well,
And a statue watches it from the Square,'

which open the story told in 'The Statue and the Bust.' In making this inspection an incident occurred which may be worth recalling. Having seen the statue we looked for the bust, but were informed by an obliging waiter standing at a door hard by that it had unfortunately been taken down from a particular spot in the palace façade which he pointed out. He added luminous details, and I gave him a lira for his information. On the first Sunday after my return to London I met Browning, and he was interested to hear of the incident. 'But that waiter!' he added, with a hearty laugh, 'why, I invented the bust!' It is, of course, just possible, though not likely, that Browning's memory was in error, and that the friendly waiter did not lie. Curiously enough, Mrs. Baxter inclined to the opinion that there had been a bust, and that the waiter spoke the truth."

New Companies.

Patent Burglar-proof Spring Co., Ltd.

Registered to acquire the business, provincial agencies, London office, patents, and assets of the Patent Burglar-proof Spring Co., of 807, Salisbury House, E.C., and to carry on the business of manufacturers, engineers, wholesale ironmongers, builders' merchants, house furnishers, &c. Capital £5,000 in £1 shares (2,500 preference).

Tenant Freeholders and Leaseholders, Ltd.

Registered to acquire and deal in and with land, house, and other property, and to carry on the business of builders, contractors, builders' merchants, financiers, &c. Capital £10,000 in 2,950 preference shares of £1 each and 1,000 founders' shares of 1s. each. Registered office: 32, Queen Victoria Street, E.C.

Sanitary Building Co., Ltd.

Registered to carry on business as builders and contractors, decorators, dealers in sand, lime, bricks, timber, hardware; dealers in tiles, terra-cotta goods; as jobmasters; to lay-out land for building purposes, planting, paving, draining, farming, cultivating, to let on building lease, &c. Capital £2,000 in £1 shares.

American Timber and Steam Joinery Works, Ltd.

Registered to acquire the business carried on at 1 to 3, New Inn Street, New Inn Yard, E., as J. Levy & Sons, and the business carried on at 8A, Spital Street, Spitalfields, as Feldman & Co.; to adopt an agreement with J. Levy, B. Levy, M. Levy and Mrs. S Feldman (trading as J. Levy & Co.), and to carry on the business of timber merchants, sawmill proprietors, timber growers, wood workers, shipowners, carriers, &c. Capital £2,000 in £1 shares. Registered office: 76, Finsbury Pavement, E.C.

Macey & Sons, Ltd.

Registered to adopt an agreement with F. H. Macey for the acquisition of the business of builders and contractors, carried on as J. M. Macey & Sons, and to carry on the business of builders, decorators, contractors, &c. Capital £12,000 in £1 shares. The first directors are F. H. Macey and H. E. Winter.

Thomas James, Ltd.

Registered to carry on the business of timber merchants, sawmill proprietors, woodworkers, brick, tile and terra-cotta makers, &c., and to take over the business carried on by T. James at 80 to 82, Page's Walk, Bermondsey. Capital £15,000 in £1 shares (5,000 preference). The first directors are T. James, W. J. R. James, T. H. James and S. J. Barefoot. Registered office: 80 to 82, Page's Walk, Bermondsey.

Langbourn Ward Estate Co., Ltd.

Registered to acquire certain freehold premises situate in Fenchurch Street and Cullum Street, to lay-out land for building and other purposes, &c. Capital £100,000 in £10 shares. Directors: E. de Q. Quincey and R. de Q. Quincey. Registered office: 143, Fenchurch Street, E.C.

New Patents.

These patents are open to opposition until January 12th.

1901.—Sewage Sprinklers.—22,923. F. P. CANDY, "Clevedon," Hatchlands Road, Redhill, Surrey. The sprinkler is of the type having perforated arms radiating from a rotatory central support. The junction of the latter with the feeding conduit is sealed with mercury; the bearings of the sprinkling apparatus may be sealed similarly to prevent water or grit getting into them.

Wood-working Machinery.—24,519. A. J. NORRIS, 63, Mildmay Grove, London, N. The machine has a vertical spindle fixed against a pedestal. On the top of the latter is a frame with a travelling carriage on which the wood is clamped. Means are also provided to allow the wood to be manipulated without stopping the machine.

1902.—Slag Cement.—2,671. A. M. CLARK, 53, Chancery Lane, London, W.C. (communicated by Fellner & Ziegler, Kreuznacherstrasse, Bockenheim, Frankfort-on-Main, Germany). The molten slag runs out of the blast furnace on to a rotary cone or disintegrator, beneath which is a table having a scraper which diverts the material to the required spot.

Tilting Scoop for Gulleys.—12,503. H. YEARSLEY, 6, Gleaves Road, Eccles, Lancs. The bowl is pivoted at each side and is connected by a link with a rod that runs up the centre of the handle. Thus the bowl may be tilted to clean out the gulley and then brought up level by pulling the handle.

The following specifications will be published to-morrow, and will be open to opposition until January 19th. A summary of the more important of them will be given next week The names in italics are those of the communicators of the invention.

1901.—22,378, WALLER, apparatus for emptying gulleys. 23,009, FIRTH, combined draught regulator and radiator. 24,429, DESMOND, vice. 25,304, THOMPSON (*Vereinigte Maschinenfabrik Augsburg und maschinenbaugesellschaft Nürnberg A.-G.*), strengthened beton or concrete floorings, roofings, &c. 25,342, ESHELBY, devices for preventing the rattling of doors, windows, &c. 25,415, GARSTIN, non-slipping staircases, landings, &c. 25,846, HIRST, gratings for slop channels. 26,034, HUSSEY, float valve.

1902.—472, GRIMSLEY, automatic sprinklers for extinguishing fires. 1,098, FOSTER, metal pipe joints. 5,169, TEMPEST, sheet-metal imitation tiling. 14,650, NEDDERSEN, device for moulding chimney tops of beton or concrete. 14,674, JOHNSON, fireproof grain bins or elevators. 17,227, BREUCHAUD, constructing sub-aqueous tunnels and other structures. 17,456, RALSTON, apparatus for controlling the flow of sewage in septic or bacterial tank systems. 19,534, THOMPSON, thin partition walls. 21,184, REID, windows.

Trade and Craft.

A New Stone Process.

Mr. L. P. Ford, who became Attorney-General of the Transvaal when the annexation took place in 1877 (Mr. Rider Haggard being Registrar), has succeeded in making large blocks of silicate-of-lime building stone free from cracks—this after several years of experiment and an expenditure of more than £30,000. The stone has been tested by Messrs. Stanger & Blount and by Messrs. D. Kirkaldy & Son, with the result that the former report its regularity of fracture indicates great uniformity of texture and strength, that it resists the disintegrating action of frost at least as well as natural calcareous stones (Bath and Portland) of known and approved quality (a test specimen repeatedly frozen and thawed having been quite uninjured), and that it withstands the action of a corrosive atmosphere better than Bath or Portland stone; while Messrs. Kirkaldy state that the average crushing of the stone is 692·8 tons per square foot, that it can be worked and carved easily, and that its porosity is (like Darley Dale) 8 per cent., as compared with 17 for Bath and Roach Abbey, 16 for Ancaster, 13·5 for Portland and 10·4 for White Mansfield. On the Continent silicate-of-lime bricks have been very extensively employed, especially by the Germans, but the difficulty has hitherto been to produce large homogeneous blocks of the stone. This Mr. Ford claims to have done. His stone resembles a fine- or coarse-grained sandstone of light or dark cream colour, according to the sand used, and the present prime cost of it (as produced at his works in North Wales) is 3½d. per cubic foot; but nearer London the higher price of coal and lime would increase the cost to about 5d. for a small works, though in a large works this would be reduced considerably. The selling prices on rail at the quarries are per cubic foot—for Bath, 11d.; Mansfield, 1s. 5d.; Portland, 1s. 8d.; Ketton, 2s.; and it is suggested that this new stone could be sold at from 6d. to 10d., about the same as brick prices. Mr. Ford (whose office is at 32, Victoria Street, London, S.W.) considers that very considerable profits can be made out of his process, and we understand that he is about to start a company for working it on a large scale, and is willing to grant licences. He issues a pamphlet giving full particulars of the process.

Wood Chimney-pieces.

Of late years there has been a revulsion from iron chimney-pieces and a return to wood, and the firms who have devoted their special attention to the latter have happily taken up a very simple straightforward standard. They have seen that it is better to have a plain chimney-piece well made than an ornate one badly made. Messrs. A. J. Arrowsmith & Co., of 80, New Bond Street, London, W., are makers of the kind of chimney-pieces we refer to, and their new catalogue contains many pleasing designs. Moulding is used as relief instead of carving in many cases, and in these days of cheap and bad carving that is a desirable method. Messrs. Arrowsmith also supply furniture, panelling, parquet-flooring and other interior woodwoork, and make a speciality of painting and decorative work.

NEW BUILDINGS IN BELFAST.

SEVERAL large business premises are nearing completion at Belfast. Of these the most important are the new offices of the Ocean Accident and Guarantee Corporation, Ltd., at the corner of Chichester Street and Donegall Square East. The building is of Tudor style, rising to 125ft., and comprises five storeys and an attic. It is built of Ballochmyle sandstone. A conspicuous feature is a tower terminating in a finial that bears the figure of a ship. The frontage to Donegall Square East is about 70ft. and to Chichester Street 60ft. Slender shafts of green Connemara marble add to the appearance of the principal doorway, on each side of which the arms of the Company, supported by mermaids, are placed; while a spacious balcony is supported by bracket busts of their Majesties the King and Queen and the late Queen Victoria. The roof is covered with Peake's "Perfecta" red roofing tiles, the stone having been supplied by Messrs. W. D. Henderson & Sons, Belfast, who were also responsible for the asphalt work in the basement. There are three shops on the ground floor. A large electric lift is provided and also a fireproof staircase. The Company's own offices are richly panelled in mahogany to a height of 8ft., the ceiling being similarly treated. The fireplace in the large offices is of specially-selected Bath stone and contains a clock with a wrought copper dial. The strong room situated in the basement measures 30ft. by 15ft. and 9ft. high, and is entirely constructed of steel. It is the first of its kind built in Ireland. The entire work has been carried out by Mr. Robert Corry from the designs of Messrs. Young & Mackenzie, of Belfast. The plumbing was entrusted to Mr. John Dowling, Belfast; the tiling to Messrs. Riddel & Co., Belfast, who also supplied the wrought-iron balusters for the staircase; and the stained glass to Messrs. Ward & Partners. The carving was carried out by Messrs. Winter & Thompson, Belfast, and Mr. W. T. Coates, agent for the Waygood & Otis Company, was responsible for the lift. The marble flooring came from Mr. J. F. Ebner's works.

The Scottish Provident Institution's new premises in Donegall Square West are also nearing completion, and it is probable that by the beginning of the new year they will be ready for occupation. The architects for this building also are Messrs. Young & Mackenzie. The premises have a main frontage of 240ft. and are built of Glasgow stone. The central feature of the front is a carved bay. The building rises to a height of 130ft. A large group represents Britannia protecting her children. Each side of the central pediment is flanked by figures of the Sphinx; there are also two flanking towers, crowned by emblematic figures at the height of 140ft. The arms of England, Ireland, Scotland and the Australian Commonwealth add to the appearance of the centre, and further down a representation of the four leading industries of Belfast—printing, weaving, shipbuilding and ropemaking—finds a place. The main entrance is formed of white marble. A number of shops are being constructed on the ground floor, and several of the spacious and lofty offices on the various landings have already been engaged. An electric lift establishes communication between the five floors of offices. The corridors are large, some of them running the entire length of the building—over 200ft. Messrs. Musgrave & Co. have installed a system of heating by hot air; lighting is by electricity and gas. Messrs. W. D. Henderson & Sons supplied and fixed throughout these buildings Messrs. Minton, Hollins & Co'.s glazed and enamelled tiles for the walls of staircases and corridors, of special pattern to suit the different spaces. Mr. Robert Corry is the builder. The carving has been done by Messrs. Purdy & Millard, Belfast; stained glass by Messrs. Ward & Partners; and marble pavements by Mr. J. F. Ebner.

The work at the new Assembly buildings of the Presbyterian Church in Ireland at Fisherwick Place is rapidly progressing. The style is fifteenth-century Gothic. Although building operations were only commenced in April last, satisfactory headway has been made, and it is expected that in the course of two and a half years the work will be completed. Messrs. Young & Mackenzie are the architects and Mr. Robert Corry is the builder. The walls are being built of a local stone known as "shoddis," obtained from a quarry near Newtownards. The buildings will contain an assembly hall 106ft. by 60ft., of horseshoe shape, and overlooked by two spacious galleries. A wide passage from Fisherwick Place will constitute the principal entrance, a second means of ingress being provided in Howard Street. At the rear a series of warehouses will be built. A large number of offices will also be added to the Howard Street side. The edifice will have a tower of unusually large dimensions, surmounted by a crown modelled on the style of St. Giles's, Edinburgh.

Complete List of Contracts Open.

DATE OF DELIVERY		WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDERS MAY BE OBTAINED.
		BUILDING:		
Dec.	4	Treeton, near Rotherham—Converting Mill into Cottages ..		T. A. Brightmore, Treeton.
,,	4	Sligo—Portland Cement, &c.	Harbour Commissioners.. ..	T. J. Mercer, Secretary, Sligo.
,,	5	London—Sewers, Subways, &c.	Corporation	Engineer, Guildhall, E.C.
,,	5	Colchester—Nurses' Quarters at Workhouse	Guardians	Goodey & Cressall, Architects, Victoria Chambers, Colchester.
,,	5	Sheffield—Buildings	University College	Gibbs & Flockton, 15 St. James's Row. Sheffield.
,,	6	Belfast—Alterations to Church		T. Houston, Architect, Kingscourt, Wellington Place, Belfast.
,,	6	Walsall—School Buildings	School Board	Bailey & M'Connal, Architects, Bridge Street, Walsall.
,,	6	Walsall—School	School Board	H. E. Lavender, Architect, Bridge Street, Walsall.
,,	6	Llansawel, Wales—Reconstruction of Chapel		D. Jenkins, Architect, Llandilo.
,,	6	Barnack, Northants—Walling, &c.		J. B. Corby, 15 All Saints' Place, Stamford.
,,	6	Cuminestown, Scotland—Alterations, &c., to Church		A. Clyne, 123½ Union Street, Aberdeen.
,,	6	Halifax—Pair of Dwelling Houses		L. Coates, Architect, Yorkshire Bank Chambers, Waterhouse Street, Halifax.
,,	6	Preston—Alterations, &c., to Infirmary		F. E. Dixon, 49 Lime Street, Preston.
,,	6	Sleaford, Lincs—Schools	Governors of Carre's Grammar School.	J. Clare, Architect, Sleaford.
,,	8	Bexley Heath, Kent—Car-shed Buildings	Urban District Council	Mordey & Dawbarn, 82 Victoria Street, S.W.
,,	8	Croydon—Extension of Car Shed	Town Council	Deputy Borough Engineer, Town Hall, Croydon.
,,	8	Margate—Engine and Boiler House. &c.	Town Council	A. Lathom, Engineer, Town Hall, Margate.
,,	8	Stratford-upon-Avon—Repairs, &c.	Waterworks Committee	R. Dixon, Borough Surveyor, Municipal Offices, Stratford-upon-Avon.
,,	9	Cowes, Isle of Wight—Chimney Shaft	Urban District Council	J. W. Webster, Engineer, Council Offices, Cowes.
,,	9	London, S.E.—Addition to Laundry at Public Baths	Deptford Borough Council ..	Borough Surveyor 493 New Cross Road, S.E.
,,	9	Great Yarmouth—Girls' Home	Union Guardians	W. Lake, Architect, Regent Street, Great Yarmouth.
,,	9	Skelmersdale, near Ormskirk, Lancs—Church		Austin & Paley, Architects, Castle Park, Lancaster
,,	10	London, S.E.—Doorway, &c..	Lambeth Guardians	W. Thurnall, Clerk, Brook Street, Kennington Road, S.E.
,,	10	London, S E.—Pump House..	Lambeth Guardians	W. Thurnall, Clerk, Brook Street, Kennington Road, S.E.
,,	10	Macclesfield—Cement, Bricks	Corporation	E. E. Adshead, Borough Engineer, Macclesfield.
,,	10	Dover—Bricks, Lime, Portland Cement, &c.	Harbour Board	W. Mowll, 34 & 36 Castle Street, Dover.
,,	10	Ventnor, I.W.—Isolation Hospital	Undercliffe Hospital Committee	G. Boughton, Architect, "Woodlands," Ryde, I.W.
,,	11	Ilkley—House		W. H. H. Marten, Architect, Cheapside Chambers, Bradford.
,,	11	London, S.W.—Victoria and Albert Museum Superstructure..	Commisssioners of H.M. Works	H.M. Office of Works, Storey's Gate, Westminster, S W.
,,	11	Preston—Hospital	Hospital Committee	J. A. Seward & W. Rawcliffe. 119A Fishergate, Preston
,,	13	Accrington—Parish Room		H. Ross, 15, Cannon Street, Accrington.
,,	13	Bury, Lancs—Gasworks Extensions	Gas Committee	H. Simmonds, General Manager, Gasworks, Elton.
,,	13	Sligo—Depôt	Union Guardians	P. J. Kilgallen, Architect, Abbeyville, Sligo.
,,	13	East Ham—Bandstand, &c.	Urban District Council	A. H. Campbell, Engineer, Public Offices, Wakefield St., East Ham
,,	15	Halifax—Shops, &c.	A. Scott, Ltd.	W. C. Williams, 29 Southgate, Halifax.
,,	16	Ystradgynlais, Wales—School	School Board	P Williams, Architect, Ty'r Gorof, Ystradgynlais.
,,	20	Gloucester—Alterations, &c., to School	School Board	W. B. Wood, 12 Queen Street, Gloucester.
Jan.	5	Trowbridge, Wilts—Hospital	Isolation Hospital Committee ..	J. H. Goodman, Architect, Town Hall Chambers, Reading.
		ENGINEERING:		
Dec.	4	Llandudno—Water Main	Urban District Council	E. P. Stephenson, Engineer, Council Office, Llandudno
,,	5	Durban, Natal—Telephone System..	Corporation	Webster, Steel & Co., 5 East India Avenue, Leadenhall St., E.C.
,,	6	Kyleakin, Skye—Piping		J. A. H. Mackenzie, Architect, Portree.
,,	8	Manchester—Fire-Boat	Watch Committee	Chief Officer of the Fire Brigade, Jackson's Row, Manchester.
,,	9	London, S.E.—Laundry Machinery	Deptford Borough Council ..	V. Orchard, 20 Tanner's Hill, Deptford, S.E.
,,	9	West Ham—Heating Apparatus	Town Council	E. T. Hall, 51 Bedford Square, W C.
,,	10	Harwich—Dredging Harbour	Harbour Conservancy Board ..	T. Miller, 9 Thoroughfare, Ipswich.
,,	10	London, E.C.—Goods Engines and Tenders	East Indian Railway Co. ..	C. W. Young, Secretary, Nicholas Lane, E.C.
,,	10	London, S.W.—Electric Wiring, &c.	Wandsworth and Clapham Gdns.	Lansdell & Harrison, 65 & 66 Basinghall Street, E.C.
,,	10	Middlesbrough—Heating, &c., at Sanatorium	Sanatorium Committee	F. Baker, Borough Engineer, Municipal Buildings, Middlesbrough.
,,	12	Crondall, Hants—Sinking Well, &c.	Frimley & Farnborough Water Co.	R. Nunn, 17 Victoria Street, Westminster.
,,	13	Manchester—Tramways	Trafford Park Estates, Ltd. ..	Lacey, Clirehugh & Sillar, 2 Queen Anne's Gate, Westminster.
,,	13	Madrid—Canal Reservoir		Office of Ministry of Agriculture, Commerce & Public Wks., Madrid.

Complete List of Contracts Open —*continued.*

DATE OF DELIVERY.		WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDERS MAY BE OBTAINED.
		ENGINEERING—*continued.*		
Dec.	15	Monte Video, Uruguay—Sanitary Works	Uruguayan Government	Consulate-General of Uruguay, Edinburgh Mansions, Howick Place, Victoria Street, S.W.
,,	15	Pontypridd—Gasholder Lift	Urban District Council	E. Jones, Engineer, Treforest.
,,	17	Cashel, Ireland—Railway	Gt. Southern & Western Rly. Co.	F. B. Ormsby, Secretary, Kingsbridge Station, Dublin.
,,	18	Egremont, Cheshire—Gasworks Extension	Wallasey U.D.C.	J. H. Crowther, Engineer, Great Float, near Birkenhead.
,,	18	Swansea—Half-Tide Extension	Harbour Trustees	A. O. Schenk, Trustees Engineer, Harbour Offices, Swansea.
,,	20	Sidmouth—Electric Lighting	Urban District Council	J. A. Orchard, Clerk, Council Offices, Sidmouth.
,,	20	Alexandria, Egypt—Steamer		Inspector of Irrigation, Third Circle, Alexandria.
,,	22	Clacton-on-Sea—Electrical Plant	Urban District Council	W. H. Trentham, 39 Victoria Street, Westminster, S.W.
,,	22	Perth, Western Australia—Rubbish Destructor	City Council	Agent-General for Western Australia, 15 Victoria St., Westminster.
,,	31	Dorking—Sewerage Works	Rural District Council	W. Rapley, Jun., Surveyor, Clovelly, Tower Hill, Dorking.
Feb.	26	Bulawayo, Rhodesia—Electric Tramway	Municipal Council	Davis & Soper, 54 St. Mary Axe, E.C.
		FURNITURE:		
Dec.	5	Liscard, Cheshire—Furniture, &c., for Hospital	Wallasey U.D.C.	W. H. Travers, Dist. Surveyor, Public Offices, Egremond, Cheshire.
,,	13	Cannock, Staffs—Furniture, &c.	Workhouse Guardians	A. W. Carver, Clerk, Union Offices, Cannock.
,,	17	London, S.E.—Furniture, &c., for Infirmary	St. Giles's Guardians, Camberwell	C. S. Stevens, Clerk, 29 Peckham Road, S E.
		IRON AND STEEL:		
Dec.	4	London, S.W.—Ironmongery	Battersea Borough Council	W. M. Wilkins, Town Clerk, Municipal Bldgs., Lavender Hill, S.W.
,,	4	Sligo—Nails, Spikes, &c.	Harbour Commissioners	T. J. Mercer, Secretary, Sligo.
,,	4	Hanley, Staffs—Fencing	Hospital Board	E. Jones, Architect, Albion Street, Hanley.
,,	5	Plymouth—Locks, Window Fastenings, &c.	School Board	E. C. Cook, 18 Princess Square, Plymouth.
,,	5	Glasgow—Stores	Messrs. Burns	Secretary, 30 Jamaica Street, Glasgow.
,,	6	Dublin—Castings, Tools, Galvanised Iron, &c.	Grand Canal Co.	G. Tough, General Manager, James's Sreet Harbour, Dublin.
,,	8	Trimdon Grange, Durham—Colliery Stores		Storekeper, Trimdon Grange Colliery, co. Durham.
,,	8	Margate—Stores	Corporation	F. Stanley, Manager, Municipal Buildings, Market Place, Margate.
,,	8	York—Stores	North-Eastern Railway Co.	E. H. Clark, Stores, Gateshead.
,,	8	Aberaman, Aberdare—Stores	Powell Duffryn Coal Co., Ltd.	Stores Manager, Aberaman Offices, near Aberdare.
,,	8	Dublin—Stores	Tramways Co.	R. S. Tresilian, 9 Upper Sackville Street, Dublin.
,,	8	South Helton, Durham—Colliery Stores	Coal Co.	J. R. Lambert, South Hetton, Sunderland.
,,	10	Dublin—Castings, Ironmongery, &c.	Ports and Docks Board	N. Proud, Secretary, Port & Docks Office, Westmoreland St., Dublin.
,,	10	Dover—Iron and Steel, Ironmonger, &c.	Harbour Board	W. Mowll, 34 & 36 Castle Street, Dover.
,,	10	Macclesfield—Iron and Steel, &c.	Corporation	E. E. Adshead, Borough Engineer, Macclesfield.
,,	15	Lancaster—Cast-iron Pipes, &c.	Water Company	J. C. Mount, Water Engineer, Town Hall, Lancaster.
		PAINTING AND PLUMBING:		
Dec.	4	Sligo—Brushes, Oil, Varnish, Paints, &c	Harbour Commissioners	T J. Mercer, Secretary, Sligo.
,,	5	Glasgow—Oil, Paints, Varnish, &c.	Messrs. Burn	Secretary, 30 Jamaica Street, Glasgow.
,,	5	Berkhampstead—Alterations to Hot-water Service	Guardians	C. H. Rew, Architect, Berkhampstead.
,,	6	Dublin—Paints, Varnish, &c.	Grand Canal Co.	G. Lough, General Manager, James's Street Harbour, Dublin.
,,	8	Dublin—Oils, Paints, Glass, &c.	Tramways Co.	R. S. Tresilian, 9 Upper Sackville Street, Dublin.
,,	8	York—Lead, Oils, Brushes, &c.	North Eastern Railway Co.	E. H. Clark, Stores, Gateshead.
,,	10	Dover—Paint, Glass, &c.	Harbour Board	W. Mowll, 34 and 36 Castle Street, Dover.
,,	10	Macclesfield—Paints and Oils	Corporation	E. E. Adshead, Borough Engineer, Macclesfield.
,,	10	Dublin—Paints, Oils, Pitch, &c.	Port and Docks Boards	N. Proud, Secretary, Port and Docks Office Westmoreland Street, Dublin.
,,	12	Preston, Lancs—Painting	Corporation	Borough Engineer, Town Hall, Preston.
		ROADS AND CARTAGE:		
Dec.	4	Sedgley—Hauling	Urban District Council	Manager, Gasworks, Sedgley.
,,	4	Southend-on-Sea—Horses for Fire Engine, &c.	Corporation	W. H. Snow, Town Clerk, Southend-on-Sea.
,,	6	Leeds—Paving, &c.	Corporation	City Engineer, Municipal Buildings, Leeds.
,,	6	Folkestone—Road Works	Corporation	A. E. Nicholls, Borough Engineer, Church Street, Folkestone.
,,	8	York—Flags, Stone, Slag, &c.	North Eastern Railway Co.	E. H. Clark, Stores, Gateshead.
,,	8	London, N.—Road Works	Hornsey U.D.C.	E. J. Lovegrove, Engineer, Council Offices, Southwood Lane, Highgate, N.
,,	8	Hale, Cheshire—Making-up Road	Urban District Council	Surveyor, Council Offices, Ashley Road, Hale.
,,	10	Dublin—Cartage, Paving Setts, &c.	Port and Docks Board	N. Proud, Secrety, Port & Docks Office, Westmoreland St., Dublin
,,	11	Northampton—Materials	Highway Committee	A. Fidler, Borough Engineer, Guildhall, Northampton.
,,	15	London, W.—Making-up and Paving Roads	Paddington Borough Council	E. B. Newton, Borough Surveyor, Town Hall, Paddington, W.
,,	18	Trowbridge—Steam Rolling and Scarifying	Urban District Council	H. G. Nicholson-Lailey, Town Surveyor, Town Hall, Trowbridge.
Jan.	27	Capetown—Streets		Davis & Soper, 54 St. Mary Axe, E.C.
		SANITARY:		
Dec.	4	Dorchester—Clinker, Broken Brick, &c., for Bacteria Beds	Town Council	G. J. Hunt, Borough Surveyor, North Square, Dorchester.
,,	5	London, E.C.—Sewers, &c.	Corporation	Engineer, Guildhall, E.C.
,,	6	Blackpool Sewer	Highways Committee	J. S. Brodie, Borough Engineer, Town Hall, Blackpool.
,,	7	Griffithstown, Wales—Sewers	Panteg U.D.C.	Surveyor, Sunny Bank, Griffithstown.
,,	8	York—Drain Pipes, &c.	North-Eastern Railway Co.	E. H. Clark, Stores, Gateshead.
,,	10	Macclesfield—Drain Pipes, Disinfectants, &c.	Corporation	E. E. Adshead, Borough Engineer, Macclesfield.
,,	10	West Didsbury, Lancs—Sewer, &c.	Withington U.D.C.	A. H. Mountain, Engineer, Town Hall, West Didsbury.
,,	15	Monte Video—Sanitary Works	Government of Uruguay	Uruguay Legation, London.
,,	17	Cannock, Staffs—Drainage Works	Guardians	Willcox & Raikes, 63 Temple Row, Birmingham.
,,	17	Pinxton, near Alfreton—Sewerage Works	Blackwell R.D.C.	H. Walker, Engineer, Albion Chambers, King Street, Nottingham.
		TIMBER:		
Dec.	4	Hanley, Staffs—Wood Fencing	Joint Hospital Board	E. Jones, Architect, Albion Street, Hanley.
,,	4	Wolverhampton—Firewood	Guardians	F. Harrison, Clerk, Union Offices, Wolverhampton
,,	4	Sligo—Timber	Harbour Commissioners	T. J. Mercer, Secretary, Sligo.
,,	6	Dublin—Timber	Grand Canal Co.	G. Tough, General Manager, James's Street Harbour, Dublin.
,,	8	Aberaman, Aberdare—Timber, &c.	Powell Duffryn Coal Co., Ltd.	Stores Manager, Aberaman Offices, near Aberdare.
,,	8	Dublin—Timber, &c.	Tramways Co.	R. S. Tresilian, 9 Upper Sackville Street, Dublin.
,,	8	Cardiff—Fitwood, Propwood and Cogwood	Nixon's Navigation Co., Ltd.	J. L. Herbert, Secretary, Company's Offices, Bute Docks, Cardiff.
,,	10	Macclesfield—Timber	Corporation	E. E Adshead, Borough Engineer, Town Hall, Macclesfield.
,,	10	Dover—Timber	Harbour Board	W. Mowll, 34 and 36 Castle Street, Dover.

List of Competitions Open.

DATE OF DELIVERY.		DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Dec.	8	Bristol—School	(Limited to Local Architects.)	W. A. Adams, Clerk to School Board, Guildhall, Bristol.
,,	12	Eccles—Laying-out Area for Workmen's Dwellings	£50, £30, £15.	W. H. Hickson, Town Clerk, Town Hall, Eccles.
,,	16	Surbiton—Clock Tower	£10 10s.	Dr. Coleman, District Council Offices, Surbiton.
,,	18	Durban, Natal—Town Hall, Library, Museum, &c.	£500, £300, £200.	W. H. Radford, Albion Chambers, King Street, Nottingham.
,,	31	Ashton-in-Makerfield—Infectious Diseases Hospital	Urban District Council	T. Burgess, Surveyor, Council Offices, Ashton-in-Makerfield.
Jan.	15	Kingston-on-Thames—Central Home and Cottage Homes for Children.	£25, £15, £10.	J. Edgell, Clerk to Guardians, Coombe Lane, Kingston-on-Thames.
,,	20	Workington—Public Library	£25, £15, £10.	W. L. Eaglesfield, Borough Surveyor, Workington.
,,	31	Cape Town—University Buildings	£400, £200, £100.	Agent-General for the Cape of Good Hope, London.
,,	31	Hull—Town Hall Extension	£300, £200, £100.	E. Laverack, Town Clerk, Town Hall, Hull.
Feb.	13	Patras, Greece—Church	£400, £160, £80.	Committee for new Church of St. Andrew, Patras, Greece.
,,	28	Bridgwater—Appliances for Silt Disposal		W. T. Baker, Town Clerk, King Square, Bridgwater.

Engineering Notes.

The Sonning Bridges are to be rebuilt with lattice-girder parapets, supported on iron piles, with 50ft. spans. This the Committee have decided on.

Ashurst Church, Steyning, has recently been fitted with the well-known "small tube" hot-water heating apparatus by Messrs. John King Ltd., engineers, Liverpool, employing their latest improved economical coil heater.

The New Workhouse Infirmary, Worksop, has been supplied by Messrs. E. H. Shorland & Brother, of Manchester, with their patent Manchester stoves, some single and some double-fronted, with descending smoke flues, Manchester grates, inlet and outlet ventilators.

The Institution of Junior Engineers was established in 1884, and has for its objects the reading and discussion of papers and the dissemination of information in engineering and the allied sciences; the visiting of engineering and other works of interest; and the mutual assistance and intercourse of its members. The session extends from October to September, papers being read at monthly intervals, from November to May, at the Westminster Palace Hotel. The visits during this period take place also monthly, alternating with the meetings, and fortnightly afterwards. The summer excursion, occupying a week, is another feature of the Institution's programme, some particular industrial centre being selected each year, and the principal engineering works, factories, and places of general interest visited. The register contains the names of about 700 members, resident not only in London but in the provinces, the colonies and foreign countries. There is a technical library, from which books may be borrowed; reading-room containing the technical journals; writing-rooms, &c. These are open from 10 a.m. till 5 p.m. On Friday evenings during the months from October to May inclusive they remain open till 9.30 p.m., excepting on the date of Institution meetings, when they are closed at 7.45 p.m. The record of the Institution's transactions is published, each member being entitled to receive a copy in the form of a bound volume. It contains all the papers read at the meetings, and reports of the visits made. The terms of subscription are:—Members residing within 20 miles of Charing Cross, under twenty-one years of age, 4s. per quarter; over twenty-one, 10s. 6d. per half-year. If residing beyond that distance, under twenty-one years of age, 12s. per year; over twenty-one, 16s. per year. Forms of proposal may be obtained of Mr. Walter T. Dunn, secretary, 39, Victoria Street, Westminster.

Current Market Prices.

		£ s. d.	£ s. d.
FORAGE.			
Beans	per qr.	1 15 0	2 0 0
Clover, best	per load	4 10 0	5 5 0
Hay, best	do.	4 15 0	5 4 0
Sainfoin mixture	do.	4 5 0	5 0 0
Straw	do.	1 8 0	2 0 0
OILS AND PAINTS.			
Castor Oil, French	per cwt.	1 3 11	—
Colza Oil, English	do.	1 1 6	1 3 0
Copperas	per ton	2 0 0	—
Lard Oil	per cwt.	2 13 0	2 14 0
Lead, white, ground, carbonate	do.	1 4 10	—
Do. red	do.	1 0 4½	
Linseed Oil, barrels	do.	1 3 3	—
Petroleum, American	per gal.	0 0 5⅛	0 0 5⅝
Do. Russian	do.	0 0 4⅝	0 0 4¾
Pitch	per barrel	0 7 0	—
Shellac, orange	per cwt.	6 6 0	—
Soda, crystals	per ton	3 2 6	3 5 0
Tallow, Home Melt	per cwt.	1 12 0	1 12 6
Tar, Stockholm	per barrel	1 1 6	—
Turpentine	per cwt.	1 18 10½	—
METALS.			
Copper, sheet, strong	per ton	65 0 0	—
Iron, Staffs., bar	do.	6 10 0	8 10 0
Do. Galvanised Corrugated sheet	do.	11 10 0	11 12 6
Lead, pig, Soft Foreign	do.	10 15 0	10 16 3
Do. do. English common brands	do.	11 0 0	—
Do. sheet, English 3lb. per sq. ft. and upwards	do.	13 10 0	—
Do. pipe	do.	14 0 0	—
Nails, cut clasp, 3in. to 6in.	do.	9 5 0	—
Do. floor brads	do.	9 0 0	—
Steel, Staffs., Girders and Angles	per ton	5 15 0	6 5 0
Do. do. Mild bars	do.	6 10 0	7 0 0
Tin, Foreign	do.	113 10 0	114 0 0
Do. English ingots	do.	114 0 0	116 0 0
Zinc, sheets, Silesian	do.	24 0 0	—
Do. do. Vieille Montaigne	do.	24 0 0	—
Do. Spelter	do.	19 12 6	19 17 6
TIMBER.			
Soft Woods.			
Fir, Dantzic and Memel	per load	1 13 0	3 0 0
Pine, Quebec, Yellow	per load	5 5 0	6 5 0
Do. Pitch	do.	3 0 0	3 4 0
Laths, log, Dantzic	per fath.	4 10 0	5 10 0
Do. Petersburg	do.	8 10 0	—
Deals, Archangel 2nd & 1st	per P.Std.	11 0 0	24 15 0
Do. do. 4th & 3rd	do.	10 5 0	15 10 0

Coming Events.

Wednesday, Dec. 3.

Sanitary Institute (Lectures and Demonstrations for Sanitary Officers, Part II.).—Mr. E. Petronell Manby, M.D., on "Fresh Meat, Preserving and Storing," 7 p.m

Royal Archæological Institute.—Mr. C. R. Peers on "Benedictine Nunnery at Little Marlow," and Messrs. F. W. Reader and A. S. Kennard on "Pile Structures near London Wall," 4 p.m.

Langbourn Wood Club.—Mr. Ellis Marsland on "Recent Fires and their Lessons to City Men."

Institute of Sanitary Engineers.—Meetings of General Purposes and Finance Committee at 4 p.m., and Election Committee at 5.15 p.m.

Archæological Association.—Meeting at 8 p.m.

Ruskin Society of Birmingham.—Sir Oliver Lodge on "Some Unpublished Letters by Mr. Ruskin," 7.45 p.m.

Society of Arts.—Mr. Alfred Watkin on "Some Aspects of Photographic Development." 8 p.m.

Northern Architectural Association.—Students' Evening.

Thursday, Dec. 4.

Sanitary Institute.—Inspection and Demonstration for Sanitary Officers at the Metropolitan Cattle Market, York Road, N., at 2 p.m., conducted by Mr. James King.

Society of Antiquaries of London.—Ordinary Meeting at 8.30 p.m.

Royal Society.—Ordinary Meeting at 4.30 p.m.

London Institution.—Mr. Richard Kerr, F.G.S., on "Colour Photography," 6 p.m.

Leeds and Yorkshire Architectural Society.—Mr. T. Stirling Lee on "Sculpture as Architectural Decoration," 6.30 p.m.

Chemical Society.—Ordinary Meeting at 8 p.m.

Friday, Dec. 5.

Architectural Association.—Mr. J. S. Gibson on "Architectural Practice, Real and Ideal," 7.30 p.m.

Institution of Junior Engineers.—Mr. William J. Tennant, A.M.I.M.E., on "The Planimeter, explained simply, without Mathematics," 8 p.m.

Glasgow Architectural Association.—Anniversary dance at 8 p.m.

Sanitary Institute (Lectures and Demonstrations for Sanitary Officers, Part II.).—Mr. E. Petronell Manby, M.D., on "The Hygiene of Byres, Lairs, Cowsheds and Slaughter-Houses," 7 p.m.

Institution of Civil Engineers (Students' Meeting).—Mr. A. Reynolds on "The Erection of Steel Bridges, Sheffield Extension of the London and North-Western Railway," 8 p.m.

Saturday, Dec. 6.

British Institute of Certified Carpenters.—Annual general meeting at 6 p.m. Election of Officers.

British Association of Waterworks Engineers.—Election of Council and Officers. Mr. W. H. Humphreys on "The Coating of Cast-iron Water Pipes. Mr. T. Molyneux on "Softening Plant at Wilmslow: Stockport Corporation Waterworks" Mr. John Shaw on "The Detection and Prevention of Underground Pollution," 10.30 a.m.

Camberwell School of Arts and Crafts.—Annual Exhibition of Students' Work (Last Day), 2 p.m to 10 p.m.

Monday, Dec. 8.

Surveyors' Institution.—Ordinary General Meeting at 8 p.m.

London Institution.—Sir Wyke Bayliss on "The Bogey in the Studio: An Address to Lovers of Art on Vexed Questions of the Day," 5 p.m.

Society of Engineers.—Annual General Meeting at 7.30 p.m.

Society of Arts (Cantor Lecture).—Prof. Vivian B. Lewes on "The Future of Coal Gas and Allied Illuminants"—III., 8 p.m.

Sanitary Institute (Lectures and Demonstrations for Sanitary Officers, Part II.).—Mr. E. Petronell Manby, M.D., on "Law and Regulations affecting Inspection and Sale of Food," 7 p.m.

Tuesday, Dec. 9.

Manchester Society of Architects (Students Meeting).—Mr. F. Osler on "Sketching Holidays."

Institution of Civil Engineers.—Discussion on Mr. T. H. Minshall's paper on "High-Speed Electrical Generating Plant," 8 p.m.

Wednesday, Dec. 10.

Architectural Association (Discussion Section).—Mr. J. S. Blunt on "Crosses," 7.30 p.m.

Japan Society.—Mr. John H. Dixon on "Some Japanese Artists of To-day," 8 p.m.

Institution of Sanitary Engineers.—Half-Yearly General Meeting at 5 p.m. Annual Dinner at the Holborn Restaurant at 6.30 p.m.

Sanitary Institute.—Discussion on "Drain Testing," to be opened by Messrs. Louis C. Parkes, M.D., J. Osborne Smith, F.R.I.B.A., and W. C. Tyndale, M.I.C.E.

Ruskin Society of Birmingham.—Rev. A. Jamson Smith, M.A., on "Verona," 7.45 p.m.

Northern Architectural Association.—Mr. R. G. Hatton on "The Ideas of the Advocates of Handicrafts; their effect on Architectural Form and Ornamentation," 7.30 p.m

Edinburgh Architectural Association (Associates' Section).—Mr. James Greeve on "Notes on Building Construction," 8 p.m.

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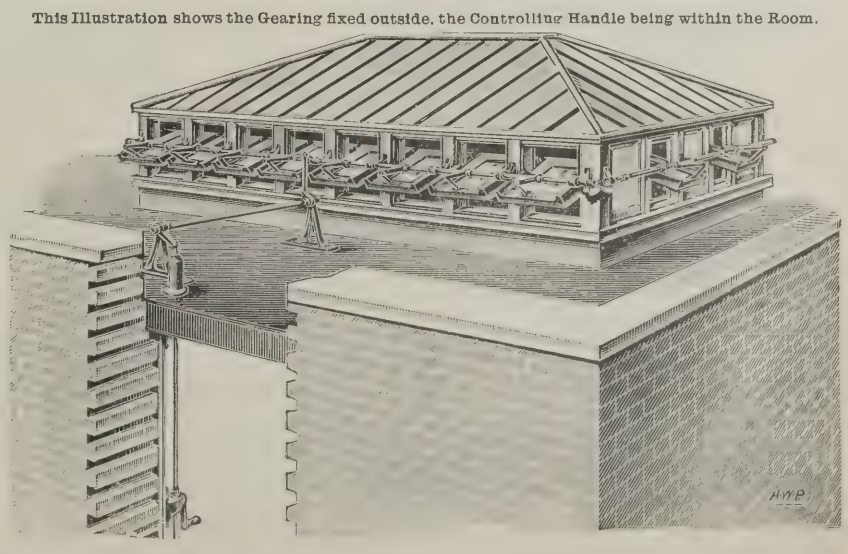
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Tenders.

Information from accredited sources should be sent to "The Editor" at latest by noon on Monday if intended for publication in the following Wednesday's issue. Results of Tenders cannot be accepted unless they contain the name of the Architect or Surveyor for the work.

Addressed postcards on which lists of tenders may be stated will be sent post free on application to the Manager, BUILDERS' JOURNAL, *Effingham House, Arundel Street, Strand, W.C.*

Brigg (Lincs).—For the construction of sewers and sewage-disposal works at Brigg, for the Brigg Urban District Council. Mr. R. E. W. Berrington, engineer, 28 Victoria Street, Westminster S.W., and Bank Buildings, Wolverhampton:—

B. Cooke & Co., London	£8,317 0 0
Hewins & Goodhand, Grimsby	7,353 0 0
Jones Brothers, Barnsley	6,875 0 0
W. H. Reading, Wolverhampton	5,895 0 0
B. Robinson, Hull	5,652 0 0
Raynor, Croydon	5,533 0 0
J. Brunton, Hull	5,528 3 6
A. H. Atkinosn, Hull	5,522 16 3
J. Sanguin, Hull	5,397 17 8
Campion & Medforth,* Bridge Street, Brigg	5,246 14 2

* Accepted.

Brentwood, Essex.—For alterations and additions to four cottages, and the erection of a fifth at Moore's Place, for Mr. A. H. Howlett. Mr. Robert H. Browne, architect, Ingatestone and Brentwood:—

Ernest Dix	£760
Robert Claydon	700
Harris & Rowe*	550

* Accepted.

Coalville (Leics).—For waterworks, for the Coalville Urban District Council. Mr. J. B. Everard, engineer, 6 Millstone Lane, Leicester:—

Contract No. 4.—Reservoir and laying mains.

J. F. Price, Nottingham	£16,844 4 10
J. & T. Binns, Croydon	14,384 11 9
Ross & Crabtree, Shipley, Yorks	14,031 0 0
T. Crawford & Sons, Strathaven	13,978 0 0
C. Chamberlain, Leicester	13,708 13 0
Bentley & Loch, Leicester	13,528 1 10
Johnson & Langley, Leicester	13,351 0 0
J. H. Vickers, Ltd., Nottingham	12,980 4 6
Jowett Brothers, Burscough	12,554 19 11
E. Orton, Coalville, Leicester	12,484 0 0
T. Smart, Nottingham	12,310 19 7
W. Moss, Coalville, Leicester	12,130 17 0
G. F. Tomlinson, Derby	11,740 0 0
W. L. Meredith & Co., Ltd., Whitecroft	11,288 6 8
H. Holloway, Wolverhampton	11,189 2 0

Contract No. 5.—Pipes and specials.

D. Y. Stewart & Co., Glasgow	£12,625 7 6
Cochrane & Co., near Dudley	10,775 6 2
A. G. Cloake, London, E.C.	10,719 6 9
J. & S. Roberts, Ltd., West Bromwich	10,680 0 4
Sheepbridge Coal and Iron Co., Ltd., Chesterfield	10,666 8 1
Stanton Ironworks Co., Ltd., Notts	10,142 17 3

Contract No. 6.—Valves.

W. Smith Brothers, Ltd., Haywood	£6,723 11 6
W. H. Bailey & Co., Ltd., Salford	4,854 18 6
G. Watson (Glenfield, Kennedy & Co., Ltd.)	2,282 13 10
Guest & Chrimes, Rotherham	2,043 16 0
W. E. Farrer, Birmingham	1,946 1 10
H. Woods & Co., Salford	1,836 5 0
J. Stone & Co., Deptford, S.E	1,816 13 5
J. Blakeborough & Sons, Yorks	1,806 13 0

Conway.—For the strengthening and widening of Conway Suspension Bridge, for the Conway Bridge Commissioners:—

A. Fazey & Son	£7,106 6 4
A. Heavyside & Co., Derby	6,885 0 0
Heenan & Froude, Manchester	6,463 19 9
Cleveland Bridge Engineering Co., Darlington	5,795 10 4
W. O. Brettell, Worcester	5,698 2 4
A. Thorne,* Westminster	5,660 17 0

* Accepted.

Crewe.—For additions to isolation hospital, Crewe, for the Crewe Town Council. Mr. G. E. Bolsham, architect, 189, Lord Street, Southport:—

W. J. Freeman, Chester	£2,980 0 0
H. Fairclough, Warrington	2,918 0 0
J. Smith & Son	2,779 9 11
J. Hamilton & Sons, Altrincham	2,674 0 0
J. Morrey	2,585 4 0
J. Gethin, Shrewsbury	2,501 0 0
J. Williams	2,493 17 10
Micklewright & Sons	2,460 17 9
J. Allison & Sons, Manchester	2,358 0 0
J. Herbert, Wolverhampton	2,350 8 0
A. E. Lee, Alsagar	2,310 0 0
J. Garner & Son*	2,296 3 1

[Architect's estimate, £2,350. Rest of Crewe.]

* Accepted.

Hatfield (Herts).—For the erection of offices for county surveyor's department at Hatfield, for the Herts County Council. Mr. Urban A. Smith, county surveyor, 41 Parliament Street, S.W.:—

S. Worboys, Potters Bar	£2,583 15 6
Avis & Brooker, Hertingfordbury	2,557 0 0
Miskin & Son, St. Albans	2,475 0 0
Spiers & Son, St. John's Wood	2,435 0 0
J. T. Wingrove, Northampton	2,376 1 9
Wilmott & Sons, Hitchin	2,332 0 0
Hampton Brothers, Hoddesdon	2,290 0 0
Musselwhite & Sons, Basingstoke	2,284 13 0
J. Gutteridge, Peterborough	2,280 2 9
G. Wiggs, Watford	2,261 0 0
Shrouder & Matthews, Stevenage	2,181 13 7
C. Brightman, Watford	2,171 0 0
F. Dupont & Co., Watford	2,163 4 8
F. Newton, Hitchin	2,158 0 0
General Builders, Ltd., Notting Hill	2,099 0 0
E West, Chelmsford	2,072 0 0
F. Gough & Co., Hendon	2,047 0 0
R. L. Tonge, Watford	1,998 0 0
Ekins & Co.,* Hertford	1,995 0 0

* Accepted.

Hampton (Middlesex).—For the erection and completion of fifty-five cottages at the Rosehill Estate, Hampton, for the Hampton Urban District Council. Mr. Sidney H. Chambers, surveyor:—

Holliday & Greenwood	£22,095
Higby & Rabson, Thames Ditton	21,696
Foster Brothers	£20,226
J. Smith & Sons, Ltd., South Norwood	18,974
Cropley Brothers, Ltd., Epsom	18,866
Bailey & Fry, Chiswick	18,824
G. Cooper & Sons, Ltd., Windsor	18,665
J. F. Collinson, Teddington	18,657
M. G. King, Teddington	18,500
G. Gray, Egham, Surrey	18,411
J. J. Wise, Deal	17,982
E. Potterton, East Molesey	17,887
Nash & Nash, Thornton Heath	17,871
C. Cain & Son, Teddington	17,843
A. M. Coles, Stonehouse, Plymouth	17,574
Newland & Higgs, Cobham, Surrey	17,467
J. Barker & Co.*	15,170
S. J. Hobern, jun.	14,055

* It has been decided to accept this tender to the following extent: Class B (thirty houses), £5 830; Class C (five houses), £1,253; Class D (nine houses), £2,658; total, £9,741.

[Rest of London.]

London, E.C.—For the erection of factory premises. Middle Row and Domingo Street, St. Lukes, E.C. Mr, Richard J. Lovell, architect, 46 Queen Victoria Street, E.C. Quantities by Mr. W. H. Webber, 7 Great James Street, Bedford Row, W.C.:—

Burman	£5,249	Patman & Fotheringham	£4,951
Adamson	5,063		
Ivery	5,025	Hunt	4,892
L. H. & R. Roberts	4,953	E. A. Roome & Co.	4,670

* Accepted.

Londonderry.—For the erection of a shirt factory at Belview Avenue, for Messrs. Linster Brothers & Co. Mr. J. M. C. Knox, architect, 2, East Wall, Londonderry:—

Shandon & Routledge	£2,889
R. Colhoun (late Colhoun Brothers)	2,780
A. Dunlop	2,779
J. Ballantine,* Strand Road	2,349

* Accepted. [All of Londonderry.]

Margaretting, Essex.—For addition of billiard, room, lavatory and four bedrooms at Sunnyside-Margaretting, for Mr. John Shaw Sheldrick, Gresham House, E.C. Mr. Robert H. Browne, architect, Ingatestone and Brentwood:—

C. Jennings	£827 10
R. S. Ronald	820 0
P. Green*	697 0

* Accepted. [Architect's estimate, £700.]

Newton Abbot.—For the erection of proposed nurses' home, for the Guardians:—

F. A. A. Stacey	£1,419 0
F. J. Valley	1,400 0
Parker Brothers	1,398 10
L. Bearne	1,395 0
H. Mills	1,340 0
G. Hicks, Newton Abbot	1,298 0
W. Brenton,* Torquay	1,086 0

* Accepted.

St. Albans.—For the erection of a shop and sundry additions to adjoining premises corner of Verulam Road and Spencer Street, for Mr. W. Kentish. Mr. S. Doddimeade Edmunds, architect and surveyor, 79 Victoria Street, St. Albans, and London:—

W. Goodchild & Sons	£495
W. Sharp	460
W. Vail & Co.*	425

* Modified and accepted.

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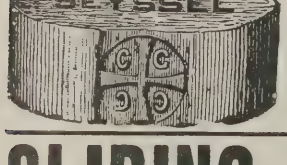
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TENDERS—*cont.*

St. Albans.—Accepted for the erection of a pair of villa residences, Upton Avenue, Spencer Park Estate, for Mr. W. Edwards. Mr. S. Doddimeade Edmunds, architect and surveyor, St. Albans:—
W. Goodchild & Sons £695

St. Albans.—Accepted for the erection of a pair of villa residences, Blenheim Road, St. Albans, for Mr. J. F. Coutts. Mr. S. D. Edmunds, architect and surveyor, St. Albans:—
W. Goodchild & Sons £1,190

St. Albans.—Accepted for the erection of a detached residence, Clarence Road, St. Albans, for Mr. G. R. Purdie. Mr. S. D. Edmunds, architect and surveyor, St. Albans:—
W. Goodchild & Sons £665

St. Albans.—For the erection of a pair of villa residences, with stabling, at corner of Granville and Grimston Roads, for Mr. J. A. Pratt. Mr. S. D. Edmunds, architect and surveyor, St. Albans. Quantities by the architect:—

G. Archer	£1,448	0	0
Miskin & Sons	1,445	0	0
E. Dunhan	1,394	0	0
J. Elwood	1,277	4	6
J. Andrew	1.250	0	0
H. J. Skelton	1,182	4	7
Goodchild & Sons	1,125	0	0
W. Vail & Co.*	1,108	10	0

* Accepted. [All of St. Albans.]

Shenfield, Essex.—For the erection of a country house, for Mr. H. B. Reeve, 5 Throgmorton Avenue, E.C., at Shenfield, Essex. Mr. Robert H. Browne, architect, Ingatestone and Brentwood. Quantities by architect:—

John Crost	£907
Ernest West	893
Bentwell & Jarvis	875
Ernest Dix*	860

* Accepted. [Architect's estimate, £950.]

Sidcup (Kent).—For the erection of schoolrooms at their new school homes near Sidcup, Kent, for the Guardians of Greenwich Union. Messrs. Thomas Dinwiddy & Sons, F.R.I.B.A., F.S.I., architects, Greenwich, and 54 Parliament Street, S.W. Quantities by Mr. W. Louis Jacob, A.R.I.B.A.:—

Foster & Dicksee, Rugby	£16,500
Killby & Gayford, Worship Street	15,538
B. E. Nightingale, Albert Embankment ..	15,238
Thomas & Edge, Woolwich	15,160
W. Shepherd, Bermondsey	15,038
Wallis & Son, Maidstone	14,583
Holliday & Greenwood, Brixton	14,457
C. Wall, Chelsea	14,400
T. Knight, Sidcup	14,290
T. Rowbotham, Birmingham	14,268
J. Lonsdale, Swanley	14,261
H. L. Holloway, Deptford	14,200
J. J. Wise, Deal	13,990
T. D. Lend,* Deptford	13,320

* Accepted.

Sudbury (Suffolk).—For the supply and erection of two steam pumping engines and the necessary pipework in connection therewith complete at the sewage pumping station, Ballingdon Street, Sudbury, for the Drainage Committee. Mr. T. W. A. Hayward, C.E., M.I.M.E., borough engineer:—

Dodman & Co., Ltd., King's Lynn	£2,077
Stewart & Co., Ltd., Glasgow	2,038
Wolstenholme & Son, Radcliffe, Lancs ..	2,036
W. R. Renshaw & Co., Stoke-on-Trent ..	1.965
Worthington Pumping Engine Co., London	1,878
W. Manders, Leyton	1,826
Barton & Co.,* Sudbury	1,718

* Accepted.

Sudbury (Suffolk).—For the erection of machinery and destructor buildings at the sewage pumping station, Ballingdon Street, Sudbury, for the Drainage Committee. Mr. T. W. A. Hayward, C.E., F.S.I., borough engineer and surveyor:—

E. West, Chelmsford	£3,000
J. F. W. Bray, Great Yarmouth	2,418
W. Chambers, Colchester	2,199
C. Theobald, Chappell, Essex	1,719
W. Manders,* Leyton	1,715

* Accepted.

Swindon.—For the erection of Jenning Street Board School, Swindon, for the Swindon School Board. Messrs. Bishop & Pritchett, architects, Swindon:—

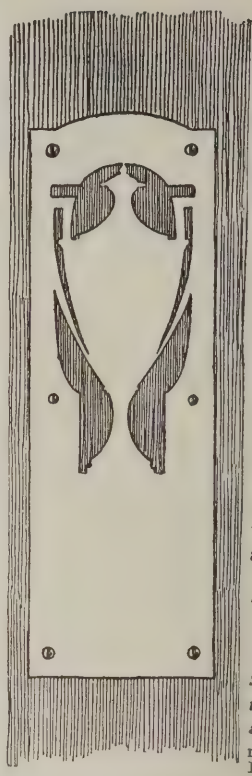
Wills & Sons, Bath	£10,290	0	0
C. Williams	9,984	0	0
Tydeman Brothers	9,866	15	0
J. Williams	9,857	17	0
Wilkins & Sons, Bristol	9,639	0	0
H. & C. Spackman	9,418	13	6
S. Chambers	9,530	10	0
A. J. Colborne*	9.199	17	0

* Accepted. [Rest of Swindon.]

Watford (Herts).—For reinstating premises in the St. Albans Road, for the Paget Prize Plate Co., Ltd. Mr. C. P. Ayres, architect, Watford. Quantities by the architect:—

R. L. Tonge ..	£2,597	Clark Brothers ..	£2,211
Swain	2,496	Murrey	2,197
Judge	2,354	Webster & Cannon	2,190
H. Brown	2,333	C. Brightman	2,168
C. Eames	2,297	Watkins	2,159
F. Dupont & Co. ..	2,296	Wiggs	2,154
J. & J. Waterman ..	2,274	Clifford & Gough* ..	2,114
T. Turner & Co. ..	2,256		

* Accepted.

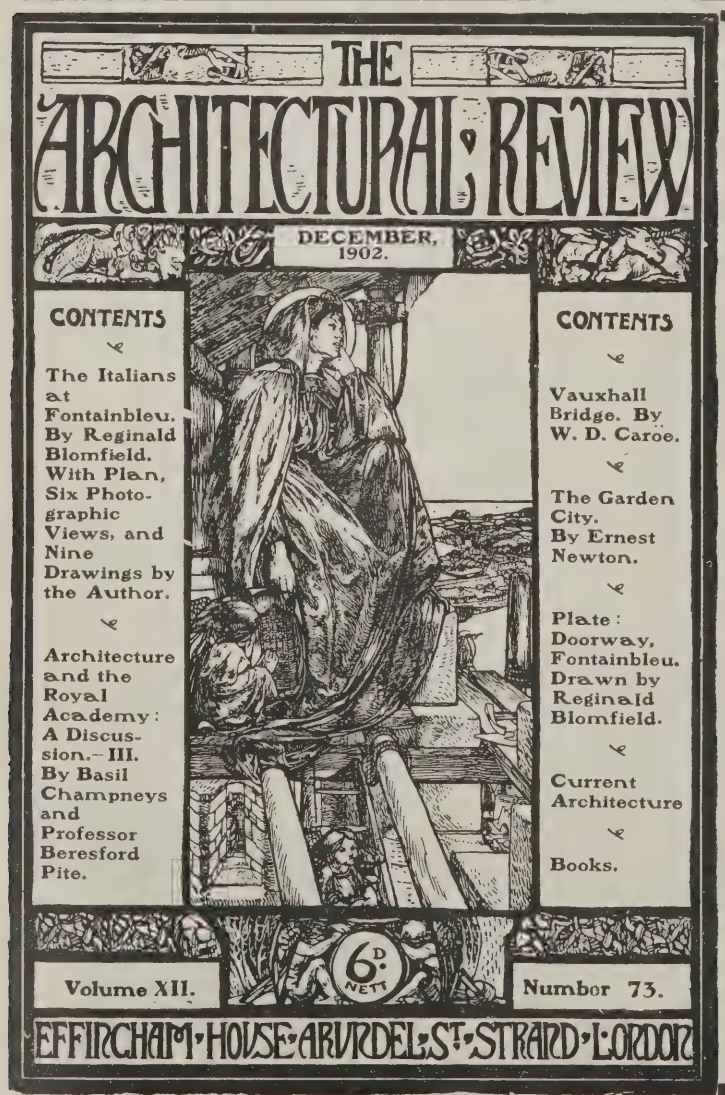


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FOR DECEMBER.

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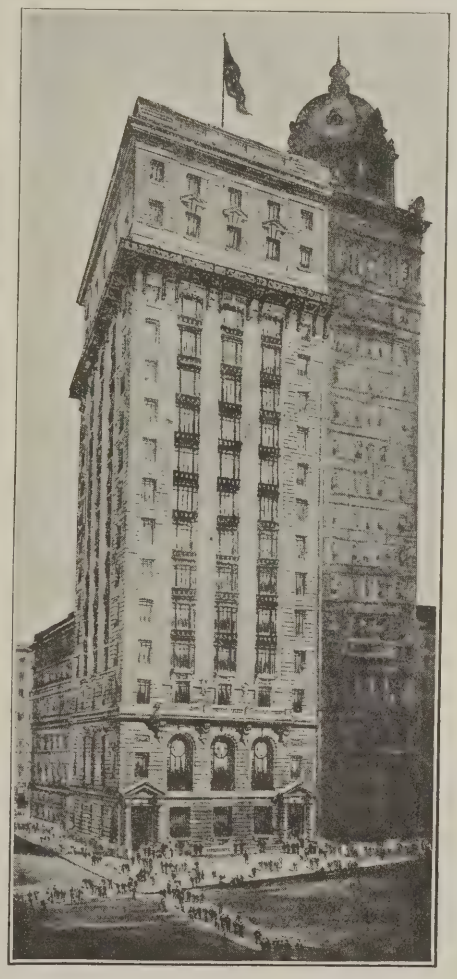
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An Architectural Causerie.

The End of St. James's Hall.

To the disappearing Strand it is probable that we shall soon have to add disappearing Piccadilly. The block forming the north side nearest Piccadilly Circus is to be removed and its place taken by a large new hotel. We may be permitted to hope that the structure may not be a "mammoth" one, as mammoths in London are apt to crush the surrounding structures so far as architectural appearance is concerned. Yet the opportunity should not be lost of widening the street at this its narrowest point—it is alone among thoroughfares in having been widened hitherto at its broadest. Nothing can ever diminish the importance of Piccadilly; it is an old thoroughfare; we hardly realise that some parts of it were built as far back as the end of the Stuart period. Where it faces the Green Park it is pleasantest, whilst the eastern section belongs mainly to "the history of the day before yesterday." Here the street gradually diminishes almost to a lane, and it is at this point that an example occurs of colour and picturesque treatment—rare, much too rare indeed, in London—which we shall be sorry to lose when the contemplated change takes place; this is St. James's Hall. The phrase in one sense is a misnomer, for the Hall itself is behind these buildings, though approached through them; the demolition of the neighbouring house exposes it at the present moment to view. The front we allude to is practically triple; it consists of three fairly harmonised designs, all Gothic and all treated with a view to colour effect. The first and easternmost is of warm yellow-brown below and red above, the red surface being of very small red bricks, with marble details of a lighter hue in parts. A little mosaic sparkles here and there, though in very bad and almost ruinous condition; a mosaic picture of dancing figures fills a space over the door; just below, a glass shelter or "marquise" runs right across the vertical lines of the building and confuses the eye; this is no part of the design, but unfortunately is a feature only too common of late in London. The Gothic work is essentially Venetian; the wall surface is partly diapered and crossed by a band of mosaic, originally beautiful but much defaced; the upper storey has an open loggia with reddish-brown Venetian tracery rising from small light-coloured marble columns. The middle block is less Venetian in treatment, but its three Gothic windows are beautifully moulded with a rich and original iron balcony; red is the prevailing hue, the stonework being of some warm sandstone. The third design is



THE BLAIR BUILDING, NEW YORK.
CARRERE AND HASTINGS, ARCHITECTS.

the most conspicuous. Below is an exceptionally large, showy and ugly glass shelter; it is possible, however, to see under this contrivance that the entrance is formed by three arches, the centre being the highest, with two short massive granite columns with foliated capitals in stone; over each arch rises a pediment in light-coloured stone, and in each pediment a medallion filled with gold mosaic; the small columns which enrich the front are everywhere of light-coloured marble; a little mosaic also gives colour to the plate tracery of some of the windows and two small medallions are filled with it. The wall-surface just here is now of a grey-purple colour, but the London climate has probably altered it considerably. A bold French mediæval roof with "bartisan" pinnacles at the angles completes the building, the stonework again being of a warm buff colour. The whole mass is an excellent example of harmonised colour and legitimate picturesque effect, and London will be the poorer for its loss. It was the work of Owen Jones, who decorated the interior as well, with all its rich faïence and tile work in bright colour. Owen Jones, who died in 1874, was the son of a Welsh antiquary. He was apprenticed for six years in an architect's office in London, and then travelled for four years in Europe, making a special study of Spain. He was one of the superintendents of the 1851 Exhibition, and, as director of decorations for the Crystal Palace, he arranged the Egyptian, Greek, Roman and Alhambra courts. In 1857 he received the Royal Gold Medal. The R.I.B.A. studentship (a certificate and £100 founded for the study of ornament and coloured decoration in architecture), together with the "Grammar of Ornament" and other books, makes the name of Owen Jones one of the most familiar to all connected with architecture.

No. 17, Fleet Street.

About the beginning of last year the London County Council at last decided to preserve this building by purchasing the freehold. As is well known, the present ugly front of the house is simply a mask to the real front—which lies behind—and early next month the Council will commence to take off the present face and expose the carved oak pilasters and other timbers. On the first floor is a room which was used as the council-chamber of the Duchy of Cornwall in the days of James the First. This room is oak panelled, and has a decorated plaster ceiling which Sir Purdon Clarke (Principal of the Art Department, South Kensington) considers to be the finest example of the period with which he is acquainted. But both panelling and ceiling are in a very much bulged condition, and they will therefore be taken down and renovated under Sir Purdon Clarke's supervision—the ceiling is to be cut up into divisions and replaced. The shop-front (for the lower part of the building has been used as a hairdressing establishment for nearly a century) will be set back 5ft., and the upper part thrown out on cantilevers to overhang the pavement. But, inside the building, the most extensive alterations have been going on; and it is now the most modern establishment of its kind in this country. The false front of the building was discovered by Mr. John Carter (the proprietor) when a new outside gas lamp was being fitted. When renovated, the old council-chamber will be open to the public, and a new staircase leading to it (and to the offices above) is to be constructed for that purpose.

A Fine Skyscraper.

To make a skyscraper satisfactory in effect is one of the most difficult architectural problems of to-day, because the immense height quite precludes all ordinary treatments. The majority of these structures fail to please the eye—many of them, indeed, are very ugly—but we think the Blair Building illustrated on this page is a most skilful piece of work, and we congratulate Messrs. Carrère & Hastings on the success of their design.

A WORD FOR MODERN GERMAN ARCHITECTURE.

By F. H. CHEETHAM.

MODERN German architecture has found but scant praise or sympathy in England. Whether German architects have based their designs on classic models or on the old picturesque buildings of the Middle Ages, we have equally refused to take them seriously, and the question "Has architecture gone mad in Germany?" (as asked by a writer in the ARCHITECTURAL REVIEW for December, 1900) has lately been illustrated by some strange examples in these columns. Much of the modern German work that gets illustrated in this country has, indeed, something of madness about it, but we should be very careful before we allow ourselves to believe that this eccentric New Art movement represents everything in German architecture. The New Art movement in Germany is very aggressive and is fond of illustrating its achievements. It has something to say, and says it with no uncertain voice. But when we criticize it we should remember that the movement owes its first inspiration to a corresponding, if perhaps soberer, movement in our own country. It would not be difficult to draw out an indictment against modern architecture in England were we to treat the exception as the rule and concentrate all our attention on the eccentric and the unconventional. A foreigner might by such a process come to ask the question, Has architecture gone mad in England? Such an enquiry would, however, have little meaning for those in touch with architectural developments in this country. While admitting our failures and shortcomings, we should object to the term "mad" being applied indiscriminately to our architecture.

Architecture is a comprehensive word, and Germany is a large country. Whilst granting, therefore, that some architects in some parts of Germany may show a tendency towards madness in their adoption of old German forms to modern use, I must protest against the assumption that this is the normal condition of architectural art throughout the German Empire. The vagaries of the new art have not by any means yet ousted the severer Classic and Renaissance schools. Many of the most important buildings in Germany of recent years have been designed on Classic and Renaissance models.

If architecture is really a living art, it should be the "natural outcome of the development of the civilisation, power and wealth of the country," reflecting the manners and customs of the people. Judged by this standard, German architecture is a living art. A great deal of what English criticism objects to in such a building as the Imperial House of Parliament in Berlin is just the touch that makes that somewhat too-badly-abused building in many ways so thoroughly national and representative. Even Mr. Statham has recognized this: "The building is a highly characteristic production of a nation strong in arms, exceedingly self-assertive, and exceedingly deficient in artistic taste; it is a national building which at once stamps itself as German to the core" ("Modern Architecture," chapter III.). This may be damning with faint praise, but the building comes out of the ordeal of criticism with the acknowledgment that it is the natural outcome of the civilization, wealth and power of the country. This should go a long way in its favour, and should make up for a lot of technical criticism about detail. Has any important building been erected in our own country, or anywhere else, upon which the guns of academic criticism have not been brought to bear? What about our own Parliament House? Will it stand the test even as well as the Berlin Reichstag building? The Gothic palace is an anachronism, which the Berlin building, however coarse and ostentatious, certainly is not. The German Parliament House, moreover, looks like a Parliament House, which is not by any means a small merit.

The visitor to Berlin should certainly take the opportunity to see Professor Wallot's building inside as well as out. As is the case with many German public buildings, the interior is far more satisfactory than the exterior. Real dignity and restraint take the place of ostentation and fussiness. The plan is admirable, and everywhere you feel that the building is just what it is meant to be—the Parliament House of the German Empire. As such, the exterior is there to impress the imagination of the man in the street with its military emblems and heraldic display. The inside is for work, and is quiet and dignified. Outside it is power and display; inside it is power without display. And is not that the German Empire itself?—the histrionic element on the surface, but underneath organisation and efficiency.

May it not be going too far also to say that Germany is exceedingly deficient in artistic taste? In music she is pre-eminent; and if in architecture she is behind France and England, she can teach them something in many of the minor arts of craft and design. The posters one sees in the streets of German towns are usually of far greater artistic merit than in England. We have advanced rapidly in this respect of late years, but we are far behind Germany yet. A German placard is nearly always distinguished by a vigorous decorative treatment, with very little or nothing of the mere pictorial about it. Heraldry is much intro-



IMPERIAL PARLIAMENT HOUSE, BERLIN. PAUL WALLOT ARCHITECT.

duced in German schemes of decoration, and with results which it is feared could hardly be attained either in this country or in France. Germany has never broken with the past in the same way that France has done, and she has never lost her knowledge of certain phases of mediæval art. Nowhere, perhaps, was heraldry a more real thing than in the Germany of the Middle Ages, and nowhere, perhaps, is heraldry accounted so much of to-day as in the German Empire. One has only to be acquainted with Otto Hupp's "Munchener Kalendars" (now, alas, brought to an end) to recognise how far we are behind Germany in the decorative and artistic possibilities of the herald's stock-in-trade. The Imperial Eagle of the German Empire is a fine bird, and is a mighty decorative asset. It gives character to even the meanest Government building; and when we come to national buildings such as the Berlin Parliament House, where all the coats-of-arms of the various states that make up the German Empire can be displayed, we cannot fail to see not only the value of the decoration itself architecturally but also the very admirable manner in which the German architects can adapt what is really mediæval ornament to a quite academic environment. The panels at each side of the principal entrance to the Reichstag building are good examples of this.

The Imperial Law Courts at Leipzig have received kinder treatment at the hands of English critics than Professor Wallot's Parliament House, though we get such epithets as "cold" and "ponderous" applied to them. One wonders whether the writer of such a criticism has seen the actual building, or only photographs or drawings of it. Nothing could be further from the truth than to describe it as "cold." The elevations are built in a warm brown stone that is a pleasure to look upon, and the whole building has a dignity and stateliness most admirably fitted to express its purpose. If not so original in design as the much-bepraised Law Courts at Brussels, the Leipzig building is far more refined and in keeping with its surroundings. Compared with the Brussels building, it is far from being ponderous. Its architect, Professor Hoffmann, chose to use old forms in a scholarly way rather than experiment in new styles. He has been eminently successful. If the Parliament House in the capital impresses you by its power and display, reminding you that the empire is based upon the strength and glory of arms, the Imperial Law Courts at Leipzig equally impress you with the severity of the law. The interior of the building is even more admirable than the exterior, a dignified and artistic restraint being everywhere present. Here, as in the Berlin building, the very frequent use of wrought-iron and steel for decorative purposes in doors, grilles and balustrades cannot fail to be noted. German metalwork is always worth attention, and is more commonly in use than amongst ourselves.

The central feature of the Leipzig Courts has been condemned, but, I think, without sufficient reason. It has been objected that the square form of dome with convex ribs is ugly and clumsy in itself. But why? It is quite open to anyone to make an equally positive statement that such a form of roof is beautiful. The present writer, familiar with the Leipzig building, finds that feature there anything but ugly and clumsy. It may appear so on an elevation, and no doubt many details are open to criticism, but on the whole the dome harmonizes well with the main lines of the building and is a very happy architectural feature in any distant or close prospect of the city.

Another important German building is the new cathedral at Berlin. It was designed by Professor Raschdorff, and has been described as "an enclyclopædia of Renaissance



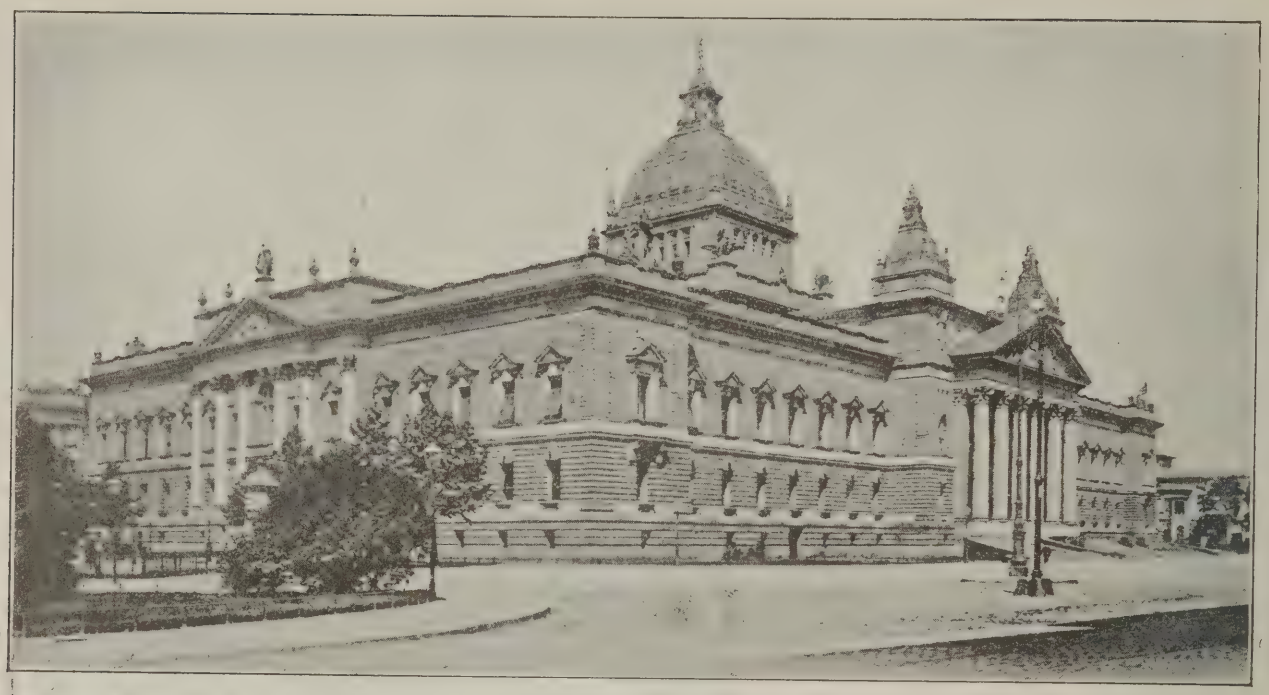
THE NEW CATHEDRAL, BERLIN. PROF. RASCHDORFF, ARCHITECT.

architecture." But the critics who object to German architecture, on the one hand, because it has gone "mad" object to it no less, on the other, because it is too academic, that is, because it is not mad enough. If the cathedral shows no architectural invention, it at least shows an intelligent use of architectural forms. And, taken as a whole, its appearance as you cross over the bridge to the Lustgarten from Unter den Linden is striking and effective. It is doubtful, after all, whether, in the present state of the architectural profession in England, with our seekings and strivings, we should not be wiser, when we come to build a cathedral, to confine ourselves to using old forms intelligently than to experiment with new ones. Shall we do anything better at Liverpool than Germany has done at Berlin? They, at least, have not built a Gothic cathedral to hail the new century, as there is some probability we shall do. Berlin Cathedral is frankly modern; and when the worst has been said of it, the design has some supreme merits. The plan is clever and by no means conventional. There have been special difficulties as regards site and requirement that have been overcome in what is little less than a masterly manner. The chief point of offence to many in the design is the treatment of the termination of the dome, "which is made to appear to terminate in a flat, with a balustrade round it, in the centre of which stands a large lantern." In reality the dome is carried up to the base of the lantern, and the balustrade is but an ornament stuck on the outside. This may not be dignified construction, but the appearance is really far less bad than one would judge from an elevation of the cathedral. In the elevation you get the straight line of the balustrade apparently cutting off the top of the dome. Actually, as seen from the street, the curved ribs of the dome lead directly up to the lantern, and the appearance of the flat termination is entirely lost.

Of these three buildings—the Parliament House at Berlin, the Law Courts at Leipzig and the new Berlin Cathedral—the Leipzig Courts is undoubtedly the best. It is a structure that will repay a close examination both inside and out. But all three buildings have merits that have scarcely been noted in England, and of none of the three—for this is the point at issue—can it be said that their architecture is "mad." Yet these buildings are as characteristic of modern German work as any of the eccentric designs so frequently illustrated.

Of smaller public buildings in Berlin mention should be made of the lately completed Royal Marstall building opposite the castle on the Schloss Platz. The architect is Herr Ernst Ihne, and he has designed a chaste Renaissance façade such as we are accustomed to look for rather from the architects of Paris than Berlin.

But if we compare the public buildings erected in Berlin to-day with those of the 'sixties and 'seventies, we cannot help but be struck with the immense advance architecture has made in the capital during the last thirty years. Red and yellow brick has given way to stone; barrack-like massiveness



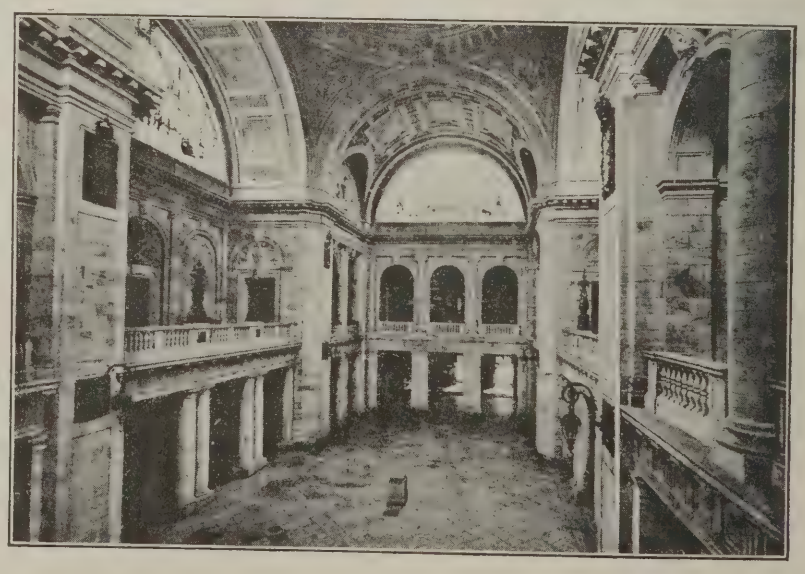
IMPERIAL LAW COURTS, LEIPZIG. LUDWIG HOFFMANN, ARCHITECT.

and monotony have given place to design and display. Such a building as the Berlin Rathhaus could hardly be erected to-day.

The madness and eccentricity of German architecture are perhaps oftenest seen in restaurants, places of amusement and business premises. Modern German church architecture, too, is apt to be more eccentric and fussy than devotional and dignified. Most of the new churches are built in a hard Gothic style, which is at once neither truly mediæval nor in harmony with the life of the present day. The plans of many of these new churches are, however, very good. It seems to have become very generally recognised that a wide central area is best fitted for modern worship, and the anachronism of the long nave, aisles and transepts is almost entirely abandoned. Where these features are retained they are shortened and curtailed in such a way as to make them almost non-recognisable. It is very likely by reason of this modernising of the plan that the exterior of the churches, where no such modernising has taken place, is often so unsatisfactory and distressing. Red, yellow and multi-coloured bricks are often used in the building of these churches, with anything but pleasing results, the effect being reminiscent of the toy churches of our nursery boxes. This tendency to build churches in a modernised Gothic in coloured bricks is perhaps more noticeable in the country than in the large towns. It is no uncommon thing for an old picturesque church to be pulled down to make room for a more commodious structure in red or brown bricks, profusely ornamented, and aggressively hostile to its surroundings. It is the more regrettable that church-building in Germany should have taken this direction, as the old type of church built in the seventeenth century is eminently picturesque and thoroughly in character with Lutheran worship. Indeed, Lutheranism does not seem to mix well with Gothic architecture. The central area suits it exactly, and until the Church of England has made up its mind as to whether it is Protestant or Catholic we shall have to keep to the old plan, for want of knowing what the requirements of the Church really are.

In domestic architecture the German love of show is perhaps more evident than in their public buildings. A certain amount of display is required of a public building, but we do not ask it in a private residence; yet the houses one sees in the suburbs of the great towns and in the country are generally characterised outside by a pretentiousness quite foreign to English ideas, and a lack of homeliness and real comfort within that is hardly compensated for by lavish expenditure or real excellence of workmanship.

But many of these defects have corresponding advantages. If the German does not understand the art of building a home as we do, he understands far better than we the art of building a street and laying-out a town. If his public monuments are not always of great artistic merit they are usually well placed and part of a well-thought-out scheme. To be able to point to one or two notable exceptions in Berlin itself does not in any way disprove such a statement. The capital of Germany has been assuming of late years all the outward and visible signs of the chief city of a great and powerful empire. With small natural advantages Berlin has made the most of them. This laying-out and embellishing of a city is a different thing from architecture, and yet the two cannot be disunited. The finest architecture that genius ever designed, if ill-situated, is a gift to the world which the world values little. Much of our best English work is thus lost. Remembering this, we may hesitate to ask whether architecture has gone mad in Germany. There is a great deal of building going on in German towns that is quite free from any taint of the eccentric. The academic school, if sometimes lifeless, is never mad, and often, as in the Leipzig Courts and the Berlin Marstall building, it is expressive, living and refined. It is by pursuing this academic path that German architecture will find its salvation. It may move slowly, for as yet the Germans as a nation are but young and are not out of the play-acting age. When, however, the period of self-consciousness is past we may hope for a nation as strong in artistic taste as in the power of arms.



INTERIOR, LEIPZIG LAW COURTS. LUDWIG HOFFMANN, ARCHITECT.

THE CRADLE OF GOTHIC ARCHITECTURE.

WAS IT FRANCE OR ENGLAND?

ON November 28th Professor Hamilton read a paper on "The Origin and Development of Gothic Architecture" before the Aberdeen Society of Architects. Mr. Arthur Clyne (the president) occupied the chair. Professor Hamilton referred to the difference of opinion as to what the Gothic meant, what was the country of its inception and evolution, and in how far they in this country were entitled to look upon Gothic architecture as a native product. Their own architects, almost without exception, claimed it for this country quite as much as for France, while foreign architects, French and American, denied that it ever arose spontaneously in Great Britain, arguing that what Gothic we possessed was originally borrowed from France and simply found a resting-place in this country.

For long he was under the impression that England was the home of this architecture quite as much as France, and that the sole difference between examples met with in the two countries was a matter of detail, not of essential construction and deep-rooted principle Having, however, read Professor Moore's volume on the Gothic, his indignation was raised by the reassertion, which ran through and dominated the whole volume, that the Gothic was essentially a product of France, that any glory attaching to it in the monuments of our country was borrowed from France, and that Gothic had never been a real product of Great Britain; he resolved to visit the centre of the great Gothic monument in France to study as well as he could the buildings upon which the French writers on architecture founded their arguments.

This tour he started in the spring of 1901, and previous to crossing the Channel he revisited some of our finest cathedrals and abbeys, so that he could compare them with those of France.

Proceeding, Professor Hamilton outlined the historical aspect of the question, showing that the Gothic notion as a new organic system undoubtedly arose in Northern France, and its earliest traces were to be found in the province, the Ile de France and its vicinity. This new architecture, he said, the most important and logical ever conceived, was thus a native product of the district in which it flourished. It was the expression of the artistic temperament and aspirations of the people among whom it originated, and was thus as well suited to them as the Classic was to the Ancient Greeks. Like all great epochs in the history of art, Gothic had a very short existence of efficiency, and from the last thirty to forty years of the twelfth century up to the first half of the thirteenth century it reached its goal. Then followed a course of decadence until it became extinct.

He then in detail pointed out the dominating features of Gothic construction, stating that the ambition of the early French builders was to erect their entire building of stone, and it was the problem of supporting the enormous mass of masonry covering three aisles which was the very *raison d'être* of the features peculiar to the Gothic style. Professor Hamilton followed up the history of the development of the Gothic as they found it written in the transitorial buildings of the north of France, and placed before his audience a sketch of the existing monuments or their remains illustrative of how the principle of construction was evolved.



BERLIN CATHEDRAL FROM THE TOWER OF THE RATHHAUS.

The Art Workers' Guild has chosen as Master for next year Mr. C. Harrison Townsend. Though the guild is nominally a private body, it has, in a quiet way, much influence in artistic matters, and Mr. Townsend should be an excellent successor to Mr. Frampton, R.A., the retiring master.

AMERICAN ARCHITECTURE.

MR. FREDERICK HARRISON'S VIEWS.

THE Capitol at Washington struck me as being the most effective mass of public buildings in the world, especially when viewed at some distance and from the park in which it stands. I am well aware of certain constructive defects which have been insisted on by Fergusson and other critics; and no one pretends that it is a perfect design of the highest order either in originality or style. But as an effective public edifice of a grandiose kind I doubt if any capital city can show its equal. This is largely due to the admirable proportions of its central dome group, which I hold to be, from the pictorial point of view, more successful than those of St. Peter's, the cathedral of Florence, Santa Sophia, St. Isaac's, the Panthéon, St. Paul's or the new cathedral of Berlin. But the unique effect is still more due to the magnificent site which the Capitol at Washington enjoys.

I have no hesitation in saying that the site of the Capitol is the noblest in the world, if we exclude that of the Parthenon in its pristine glory. Neither Rome nor Constantinople, nor Florence, nor Paris, nor Berlin, nor London, possesses any central eminence with broad open spaces on all sides, crowned by a vast pile covering nearly 4 acres and rising to a height of nearly 300ft., which seems to dominate the whole city. Washington is the only capital city which has this colossal centre or crown. And Londoners can imagine the effect if their St. Paul's stood in an open park reaching from the Temple to Finsbury Circus, and the great creation of Wren were dazzling white marble and soared into an atmosphere of sunny light. . . .

America is making violent efforts to evolve



ROYAL MARSTALL BUILDING, BERLIN. ERNST IHNE, ARCHITECT.

a national architecture, but as yet it has produced little but miscellaneous imitations of European types and some wonderful constructive devices. A walk along the Broadway and Fifth Avenue of New York leaves the impression of an extraordinary medley of incongruous styles, highly ingenious adaptations, admirable artistic workmanship triumphs of mechanics, the lavish use of splendid materials, and an architectural pot-pourri which almost rivals the Rue des Nations at the Paris Exhibition of 1900.

There are some excellent copies of European buildings, such as the Giralda of Seville, Venetian palaces, châteaux from Touraine, Palladian loggie, and here and there a German schloss. There are some beautiful revivals of fine art, such as the thirteenth-century Gothic of St. Patrick's, the Italian palaces of the Metropolitan and University Clubs, the Renaissance palaces of the Vanderbilts. Facing Central Park, each millionaire seems to have commissioned his architect to build him a mansion of any ancient style from Byzantine to the last French Empire, provided only it was in contrast to the style of his neighbours. So commissioned, the artist has lavished skilful carving, singular ingenuity and noble material in stone, marble and mosaic. Many of these are interesting experiments, and some are beautiful, but the general effect of such rampant eclecticism is rather bewildering.

In constructive novelties the American builder is consummate. Among these are the Brobdingnagian piles of twenty storeys, the substitution of lifts for staircases, the construction of edifices of steel, the profuse use of stone and marble as ornaments rather than as material, the multiplication of baths, heating apparatus, electric and other mechanical devices, and the intensely modern and up-to-date contrivances which put to shame the clumsy conservatism of the Old World. Nothing in Europe since the fall of old Rome and Byzantium, not even Genoa in its prime, has equalled the lavish use of magnificent marble columns, granite blocks and ornamental stone as we see it to-day in the United States. The Illinois Trust Bank of Chicago—a vast marble palace is, I suppose, the most sumptuous and one of the most beautiful commercial edifices in the world, and its safety-deposit vaults are among the sights of that city.

The reckless use of precious marbles seems to threaten exhaustion of the quarries, but one is assured that they are ample for all demands. Why more use is not made in Europe of the magnificent marbles of America is not very obvious. But we certainly might easily adopt some of the constructive devices of their builders. Not, one trusts, the outrageous towers of Babel, in twenty or twenty-four floors and 500 rooms, built of steel and faced with granite as a veneer, which are seen in New York and Chicago, and hopelessly disfigure both cities. If these became general, the street would become dark and windy cañons, and human nature would call out for their suppression.

But the British architect has much to learn from modern American builders. In matters of construction, contrivance, the free use of new kinds of stone and wood, of plumbing, heating and the minor arts of fitting, the belated European in America feels himself a Rip Van Winkle whirled into a new century and a later civilisation.—[Extracts from the "New York Times Saturday Review."]

The Parish Church of Sturton-en-le-Steeple, which was partially destroyed by fire early in 1901, has been reopened after undergoing complete restoration from designs by Mr C. Hodgson Fowler, F.S.A., of Durham. Messrs. Bowman & Sons, of Stamford, were the contractors.

New Patents.

This patent is open to opposition until January 19th.

1901.—Float Valves.—26,034. J. HUSSEY, "Mont Doré," Haverstock Road, Knowle, Bristol. An auxiliary valve is arranged in a passage in the main valve to gradually open and close the water passage and so prevent concussion.

The following specifications will be published to-morrow, and will be open to opposition until January 26th. A summary of the more important of them will be given next week.

1901.—23,997, MILLER, valves. 24,063, LEE, measuring rules. 24,065, LINNEY & LINNEY, safes and vaults. 24,120, GRIMSLEY, heating buildings by hot water generated by gas and oil engines. 24,268, CLIFTON, band-sawing machines. 24,910, ROUSSELLE, stone pavements. 25,605, HADFIELD & JACK, crushing mills. 25,814, TWYFORD, baths. 25,970, GILL, floating caissons. 26,381, PRESTON & WILLIAMS, flushing syphon for deep or shallow sewers.

1902.—241, HAUENSCHILD, kilns. 461, DUDEK, DEMBOWSKI & JOSEPHY, wood-working machines. 665, DOULTON & PLEACE, flushing syphons for sewage. 925, BULL, stays for casement windows and sashes. 3,283, LOUDON, hods for building. 4,301, HUMPHRY, hooks for lifting loads. 7,810, HEATON & HEATON, scoop for cleansing gulleys, &c. 8,495, ANDROVETTE, prismatic skylights. 11,185, REIN, means for closing chimneys. 11,706, COOMBS, combined rule and square. 17,127, COPE, underground conduits for electric tramways. 20,154, THEYSKENS, pulleys. 20,484, ROSS, machines for cutting I-beams, channel-irons, &c. 21,415, HIGHET, soil and drain pipes.

R.I.B.A. NOVEMBER EXAMINATIONS.

PASS LIST.

THE preliminary examination of the Royal Institute of British Architects qualifying for *Probationership* was held in London and the under-mentioned provincial centres on November 4th and 5th last. Of the 163 candidates admitted, 54 were exempted from sitting, and 109 were examined with the following results:—

Centre.	Number examined.	Passed.	Relegated.
London	61	39	22
Birmingham ..	13	10	3
Bristol ..	5	3	2
Leeds	10	7	3
Manchester ..	13	10	3
Newcastle ..	7	6	1
	109	75	34

The passed candidates, with those exempted —129 altogether—have been registered as Probationers. They are as follows:—

Preliminary Examination.

N. A. Allen (Stroud)
A. Andrew (Kilmarnock)
T. S. Attlee (London, S.W.)
W. Baird (London, W.C.)
T. W. Barley (Eccles)
L. Barnish (Southport)
H. D. Barry (Sevenoaks)
A. Binning (London, S.E.)
W. Blackshaw, jun. (Stockport)
Q. M. Bluhm (St. Anne's-on-the-Sea)
K. W. Booth (London, S.E.)
A. E. L. Bower (Liverpool)
F. A. Broad (Bournemouth)
F. Brooksby (Wellington)
A. F. Bryan (Lutterworth)
A. Bulloch (London, S.W.)
J. W. Cabre (Liverpool)
A. F. Caine (London, N.W.)
D. W. Clark (Twickenham)
G. L. Clarke (Keighley)
N. S. Clarke (Beverley)
H. Collings (Scarborough)
C. R. Corfield (Birmingham)
R. H. Crummack (Hartlepool)
C. W. Davis (Birmingham)
S. M. Dempster (London, W.)
W. F. Dickinson (London, S.W.)
C. M. Drewitt (Southport)
H. V. M. Emerson (London, S.W.)
H. C. Emery (London, N.)
C. W. Fairweather (Newcastle on-Tyne)
S. G. Follett (Edinburgh)
G. Foster (Ilford)
H. H. Fraser (York)
A. W. Fulton (Liverpool)
E. H. Gandy (Wolverhampton)
W. S. George (London, S.W.)
J. J. Goldie (London, S.W.)
J. Govan (Wishaw, N.B.)
J. H. Grant (Hyde)
T. F. W. Grant (Felstead)
E. H. Hacking (Manchester)
C. L. Hampton (London, S.W.)
W. K. Hart (Wakefield)
E. H. Harvey (Southsea)
R. W. Hawkes (Stratford-on Avon)
W. F. Helm (Woolston)
J. W. Hepburn (London, N.W.)
D. Hill (London, S.E.)
O. H. W. Hillerns (Hessle)
F. J. W. Hodgson (Bournemouth)
A. E. Holbrow (London, W.)
T. Holland (Clay Cross)
E. H. Honeyburne (Southport)
P. C. Hoy (Heaton Mersey)
H. Hudson (Shipley)
G. F. Iotham (Sandwich)
S. D. Jennings (Birmingham)
C. Johnston (London, S.W.)
J. H. Jones (Swansea)
R. T. W. Jordan (North Shields)
G. A. Kay (Ramsey, I.M.)
J. Kellett (London, W.)
A. Kirby (Watford)
J. Knight (Manchester)
C. A. Lamb (London, W.)
A. H. Lamont (Edinburgh)
R. A. Lawton (Rochdale)
A. J. L. Leman (London, S.W.)
F. G. Leonard (Chatham)
J. N. Lewis (Waterloo)
H. C. Lowick (Little Brington)
F. H. McDonnell (London, E.)
H. S. Maclaren (Brighton)
W. R. Mann (Leicester)
H. Y. Margary (London, S.W.)
C. B. Metcalfe (Bradford)
W. Milburn, jun. (Sunderland)
D. Milne (London, S.W.)
J. Mundell (West Hartlepool)
C. H. Murray (Eastbourne)
A. H. Nathanielsz (Glasgow)
H. B. Newbold (London, W.)
L. M. Newell (Ledsham)
S. G. Newstead (London, W.)
L. S. Nicholls (Handsworth)
F. G. Oliver (Berwick-upon-Tweed)
H. A. Palmer (Petersfield)
T. C. Pomphrey (Wishaw, N.B.)
S. Pool (Derby)
N. O. Reisersen (London, W.)
W. H. E. Roberts (London, S.W.)
A. K. Robertson (Edinburgh)
E. M. Runtz (Lewes)
R. A. R. Saunders (Exeter)
J. W. Shaft (Petersfield)
W. G. Shaw (Blackburn)
C. R. Shield (London, W.)
L. A. D Shiner (Grays)
G. E. Sleightholm (Scarborough)
F. R. Smith (Leeds)
H. M. Spence (North Shields)
H. Stephen (Leigh)
B. M. Sullivan (Hastings)
J. B. Surman (Birmingham)
W. Sotcliffe (Todmorden)
T. A. Swan (Edinburgh)
W. C. Symes (London, E.C.)
H. A. Symington (Leicester)
W. J. W. Todd (Edinburgh)
J. W. Tomlinson (Coventry)
W. H. C. Tryon (Epsom)
G. C. Tyler (Send)
G. Unsworth (London, S.W.)
R. O. Warder (West Birmingham)
F. Waterman, (London, S.E.)
L. T. Weaser (London, N.E.)
M. E. Webb (London, W.)
J. H. L. Wheatley (St. Leonards-on-Sea)
P. G. White (Bromley)
J. H Williams (Leeds)
W S. Willis (Great Grimsby)
H. J. Wilson (Peterborough)
A. E. Wright (Kingston-on-Thames)
G. Young (Glasgow)
R. C. Young (Bristol)
B. C. Westwick (Mansfield)
G. B. Wills (London, W.C.)

Intermediate Examination.

The Intermediate Examination, qualifying for *Studentship R.I.B.A.*, was held in London and the undermentioned provincial centres on November 4th, 5th, 6th and 7th. Ninety-eight Probationers were examined, with the following results:—

Centre.	Number Examined.	Passed.	Relegated.
London ..	67	40	27
Bristol	5	3	2
Glasgow	6	5	1
Leeds	7	2	5
Manchester	13	4	9
	98	54	41

The successful candidates have been registered as Students. Their names, given in order of merit as placed by the Board of Examiners, are as follows:—

S. Warwick (London, W.)
A. G. Parker (London, N.W.)
H. A. Willatt (Nottingham)
G. Hanson (Bradford)
J. D. Clarke (London, W.)
G. V. Myer (London, W.)
C. Forsyth (Glasgow)
H. V. Shebbeare (Surbiton)
W. D. Quirke (London, N.W.)
F. B. Foster (Leamington)
G. Dykes (Glasgow)
A. Wagstaff (Glasgow)
C. J. Goodwin (Croydon)
H. E. Woodsend (Nottingham)
C. E. Lovell (Gravesend)
R. A. Loveitt (Abergavenny)
H. J. Richardson (St. Leonards-on-Sea)
D. B. Hutton (Glasgow)
G. A. Johnson (Croydon)
C. Paterson (Bowdon)
G. F. B. Daniell (London S.W.)
W. Haywood (Birmingham)
T. T. Cumming (Reading)
H. Langman (Southport)
R. Donnelly (Holywood, co. Down)
M. Skinner (Beckenham)
P. M. Stratton (Salisbury)
P. G. Crawley (Peterborough)
H. S. Sawyer (Winchester)
B. B. Hooper (London, S.W.)
I. T. Sifton (London, W.)
E. A. Agutter (London, W.C.)
G. N. Beaumont (Wakefield)
A. F. S. Bryden (Glasgow)
A. E. Bullock (London, W.)
O. H. Cockrill (Great Yarmouth)
I. Cooke, jun. (Liscard)
W. H. H. Cooke (Stroud)
E. H. Edleston (Nantwich)
H. L. Etherington-Smith (London, S.W.)
F. J. Humphry (Worthing)
H. Hunnisett (Rye)
P. W. Lovell (London, N.)
A. S. Millar (Reading)
C. J. Monson (Newark)
A. Potter (London, W.)
E. L. Pryor (London, S.E.
H. B. Smith (London, W.)
R. Stubbs (Winsford)
J. R. Sykes (London, N.W.)
E. R. Taylor (London, W.)
B. W. Thomas (Southampton)
R. F. Tucker (London, S.W.)
H. M. Whiddington (London E.C.)

Final and Special Examinations.

The Final and Special Examinations, qualifying for candidature as *Associate R.I.B.A.*, were held in London from November 14th to 21st. Of the forty-nine candidates examined, twenty passed, and the remaining twenty-nine were relegated to their studies. The following are the names of the passed candidates:—

R. Bennett (Buxton).
W. E. Brooks (London, W.)
F. B. Chester (London, S.E.)
W. St. Leger Crowley (Cardiff)
W. Greenwood (Blackburn)
J. H. Higson (Blackburn)
J. Holt (Wilmslow)
H. J. B. Hoskins (Birmingham)
J. I. P. Jones (Cardiff)
J. M. Lethbridge (London, N.)
T. F. MacLennan (Edinburgh)
C. E. Monro (Bearsden)
G. S. Nicol (Birmingham)
C. E. L. Parkinson (London, W.)
H. T. Rees (London, S.E.)
N. T. Salmon (Reading)
S. Towse (Catford)
W. H. Watkins (Bristol)
H White (Loughton)
F. C. Wrigley (London, W.)

The following shows the number of failures in each subject of the Final:—

I. Design 23
II. Mouldings and Ornament 23



THE LESSING THEATRE, BERLIN.



ST. LEONARD'S CHURCH, DUNFERMLINE, FIFE. P. MACGREGOR CHALMERS, I.A., ARCHITECT.

III. Building Materials	..	..	.. 14
IV. Principles of Hygiene	..	..	.. 12
V. Specifications	..	..	.. 8
VI. Construction, Foundations, &c.	..	..	.. 13
VII. Construction, Iron and Steel, &c.	..	..	.. 16

The Ashpitel Prize. — The Board of Examiners recommend that this prize be awarded to Mr. William Greenwood, of Blackburn (*Probationer* 1900, *Student* 1901), he being the candidate who has distinguished himself most highly in the Final Examinations of the year.

New Fellows and Associates.

The following gentlemen have been elected Fellows of the Royal Institute of British Architects :—

W. Black (Cape Town)
W. J. Hardcastle (London)
L. V. Hunt (London)
L. Martin (London)
James Ransome (Consulting Architect to Government, Calcutta, India)
S. B. Russell (London)

The following gentlemen have been elected Associates :—

G. W. Allsop (Auckland, New Zealand)
C. W. Beaumont (London)
J. H. Belfrage (London)
R. Berrill (London)
W. Bevan (London)
H. C. Bishop (London)
E. D. Brown (London)
R. P. Chamberlain (Leicester)
H. Chapman (London)
A. R. Condor (London)
E. F. M. Elms (London)
R. F. Farrar (London)
J. H. Gibbons (Manchester)
T. H. Gibbs (London)
T. S. Gregson (London)
B. Greig (London)
P. J. Groom (London)
P. J. Haywood (London)
W. H. Hobday (London)
O. Holden (Kettering)
H. S. Jardine (London)
I. C. Kent (Hailsham, Sussex)
R. G. Kirkby (Sunderland)
H. L. E. M. De Colleville (Brighton)
W. J. Nash (Bournemouth)
C. F. Newcombe (Newcastle-upon-Tyne)
P. C. Newman (London)
W. Campbell Oman (Public Works Department, Johannesburg, and London)
E. O. Payne (London)
W. S. Payne (London)
R. McM. Roberts (London)
A. R. Robertson (London)
E. Simm (Osbaldestone, near Blackburn)
S. Smith (Deal)
J. Swarbrick (Manchester)
C. F. Ward (London)
L. F. Ward (Birmingham)
C. W. F. Wheeler (London)
T. W. Whipp (Scarborough)
H. A. Wilson (Newcastle-upon-Tyne)
R. G. Wilson, jun. (Aberdeen)
D. Wood (Newark-on-Trent)
W. Wrigley (Wakefield)

As Hon. Associate :—

George Mallows Freeman, K.C., J.P. (London, W.)

Engineering Notes.

The Rochford Union Infirmary has been supplied by Messrs. E. H. Shorland & Brother, of Manchester, with their patent Manchester stoves with descending smoke flues and patent Manchester grates.

Geysers in Bathrooms.—On Wednesday last an inquest was held at Hampstead on a man who was poisoned by the carbonic oxide fumes from a hot-water geyser in his bathroom. A brother of the deceased, an engineer, said that the geyser was perfectly built, but he thought the trouble was due to the cowl on the ventilating pipe, which would not allow the fumes to escape. The jury returned a verdict of accidental death.

The Institution of Electrical Engineers held a meeting last week, when the president, Mr. James Swinburne, delivered an inaugural address. He said the tides were often referred to as a possible source of energy even to this day; and it was urged that in places where the tide rises abnormally it would pay to make a dam, with turbines. This statement contained many fallacies. The plant would be expensive, and the result of no value. As a rule water-power was not where it was wanted industrially. The result was that water-power could not command the same price as steam or gas.

The Simplon Tunnel.—Dr. Gustave Goegg (Professor of Technology at the High School of Commerce, Geneva) read a paper on the Simplon Tunnel recently before the Society of Arts. Dr. Goegg observed that the pass over the Simplon had been for centuries one of the routes from the valley of the Rhone to Lombardy, and after various schemes had been brought forward the Jura-Simplon Company, who had obtained a concession for making the line, agreed with a syndicate for its construction. There were to be two tunnels side by side. It was agreed that the works should begin at latest on November 13th, 1898, and the first tunnel was to be completed and the piercing of the second tunnel finished in five years and a half—by May 15th, 1904. The length of the tunnel was 19,770 mètres. At the beginning hand-drilling gave a progress of 1·94 mètres a day, but since hydraulic drills were set to work the progress made had been at the rate of 6, 8 and 10 mètres daily. Up to the end of last month 13,608 mètres had been pierced. Owing to difficulties the syndicate had requested that the date for the termination of the work might be extended for fourteen months—to July 1st, 1905.

ST. LEONARD'S CHURCH, DUNFERMLINE.

THIS new Established church will be erected in the district of Brucefield, Dunfermline, by the trustees of the late William McLaren, who left funds for the purpose. The site, a corner one, is beautifully wooded, and it is intended as far as possible to preserve the trees. The building has been designed in a simple pre-Norman style, the chief feature being the employment of the tall round tower with conical roof characteristic of this early type of Christian architecture. Two of these ancient towers remain in Scotland, and a great number still stand in Ireland, but this is the first instance of the use of such a tower in modern times. It is proposed to build the whole works, including the interior, of small-sized rubble work. The plan consists of a nave with two side aisles, with an apse at the east end of the nave. Halls and other offices are also provided. The church will accommodate 723 persons, and the cost will be about £5,000.

Enquiries Answered.

The services of a large staff of experts are at the disposal of readers who require information on architectural, constructional or legal matters. Questions should in all cases be addressed to the Editor. The querist's name and address must always be given, not necessarily for publication.

"Keim's" Decoration.

ULVERSTON, LANCS.—ARK writes: "What is Keim's process of decoration? Are there any churches in this district which have recently been decorated?"

We have never heard of "Keim's" process of decoration. As to the second question, how can we be expected to know about every church in the country that is put into the decorator's hands? Surely it would be far more reasonable for us to ask the querist such a question than it is for him to ask us.

Old Lecterns.

NEWCASTLE.—EAGLE writes: "I should be glad to know where there are any Pre-Reformation lecterns."

The oldest oak lectern in England is said to exist at St. Augustine's Church, East Hendred, Bucks, a parish of which the great Archbishop Chicheley was once rector. The most ancient carved oak eagle lectern in this country is probably that in St. Thomas the Apostle Church, situated west of the River Exe, but now part and parcel of the city and county of Exeter. It is a fourteenth-century one, originally in use in the Cathedral Church of SS. Peter and Paul, Exeter, and is apparently co-eval with the bishop's throne, this latter standing upon the south side of the choir of that cathedral. This throne is 52ft. high and the finest in the world, both as regards size and purity of detail. The Cathedral fabric rolls tell us it was made by Robert de Galmeton, in 1316, out of oak cut down for the purpose four years before in the woods of Chudleigh and Newton, situated 8 and 12 miles respectively from Exeter. The early Decorated detail upon this throne is exquisitely beautiful, and for delicacy of manipulation has a rival only in the Beer Stone sedilia in the sanctuary hard by. Both were carried out in Bishop Stapledon's time (A.D. 1302-26), and both as examples of Decorated oak and stone carving, are the best specimens of that period in existence in England. The lectern at S. Thomas's is triangular on plan, and on its base are carved three crouched quadrupeds. There are crocketed ogee-headed niches on the three sides of the stem, once occupied by figures; and the bird, which is very crude, stands bolt upright upon a ball. In Parker's "Glossary of Architectural Terms" (1869) will be found an illustration of the fourteenth-century lectern at Debtling Church. It has a four-sided revolving book-desk. In Belgium I know of a very fine metal fifteenth-century eagle lectern at the church of St. Martin at Hal; of another, of the same date and material, but representing a pelican without her young, at St. Germaine's Church in Tirlemont; and of a third, also of metal, but having a winged quadruped as the book-holder, in the church at Ardenne. There is a still earlier one at the cathedral at Tournay (fourteenth century). This, like the St. Thomas one and those at Hal at Ardenne, is three-sided. Several fine examples of mediæval metal lecterns I remember at the Exhibition of Ancient Ecclesiastical Art at Bruges during the past summer. At Dinan, in Brittany, last month, I saw a large eagle lectern of carved oak exposed for sale, outside one of the many second-hand shops in that town. As a lectern it was uncommonly tall, but the lower structure was singularly frail. It appeared to be late fifteenth-century work, and one naturally felt it a burning shame for so interesting an example of ecclesiastical work to be exposed in such a manner. HARRY HEMS.

Air-Inlet Covers for Drain-Shafts.

STAFFORD.—SUBSCRIBER writes: "Who are the makers of Cregeen's air-inlet covers for pipe shafts in drains?"

They are manufactured solely by Messrs. J. Stone & Co., Deptford, London, S.E.

T. E. C.

Sanitary Arrangements in Factories.

BIRMINGHAM.- NEMO writes: "Is there any specified number of w.c.'s and urinals per person, both male and female, which is compulsory when building new factories and workshops? If so, where can I obtain a copy of the regulation?"

Write to the Secretary, Factory Department, Home Office, Whitehall, London, S.W., giving particulars of your requirements.

T. E. C.

Patenting Plans.

LONGTON, STAFFS.—BRUCE writes: "A builder here has built some houses and has patented the plans. Is this legal, and can it prevent persons copying or adapting the plans, wholly or in part, for their own use? I am informed that the builder is charging £5 per house as a fee for copying them."

We think you must be under some misapprehension as to the plans in question, for we do not understand how they could have been *patented*. They may certainly have been copyrighted, which, as explained on p. 167 of our issue for October 22nd, can be done by paying a fee of 5s. But letters patent can only be granted for "manufactures," and, wide as the interpretation of that word may be, we do not think it will include plans of buildings; and these could not even be protected as designs under the Patents, Designs and Trade Marks Act of 1883, for there again "design" means any design applicable to an article of manufacture or to some natural or artificial substance. Such of the officials of the Patent Office as we have consulted agree that plans cannot be patented. The books do not suggest such a thing.

The Architects' Registration Bill.

WOMBWELL.—J. W. writes: "Where can copies of the Architects' Registration Bill be obtained?"

Copies of the Bill can be obtained from the secretary of the Society of Architects, St. James's Hall, Piccadilly, W., price 3d.

Variation in Cost of Flooring.

J. R. writes: "A building was originally specified to have wood block floor on 6in. concrete to ground floor. The floor construction has now been altered to 1¼in. oak-dowelled floor on 4in. by 2in. ground joists resting on sleeper walls and 6in. surface concrete under. The price in the original quantities was not p.c. for wood blocks, and my price was 9s. per yard, and my cheapest quotation 6s. per yard for letting this work, *i.e.*, 3s. per yard profit. The architect in making the variation has stipulated for a subcontractor to lay the new flooring only at a price of 48s. per square, and has made this a p.c. item. The question now arises as to the adjustment of the builder's price; and inasmuch as p.c. items are restricted to 10 per cent. profit, if the flooring is dealt with on that basis of profit I shall loose as compared with the profit I should have made had there been no variation. Can I insist on having the same profit on this p.c. of 48s.?

An architect has a perfect right to substitute any kind of work for another. Similar cases to yours are of very frequent occurrence, and arise from the prices in the bill of quantities not each being put in at their real cost with a percentage added for profit. Builders often price an item which they think may be reduced or omitted very low, and other items necessary or not likely to be cut out very high, so that the work left may be considerably more profitable in proportion to the amount than if the contract were executed without alteration. They have only themselves to blame if they are circumvented.

Rough-Cast.

CORK.—AMATEUR writes: "(1) What are the proper ingredients and proportion of mixing to obtain a good white rough-cast? (2) Does copperas or yellow ochre impart a permanent yellow colour to dashing? (3) Is it usual to use broken glass for obtaining a good effect?"

(1) See p. 440 of our issue for January 9th, 1901. (2) Yellow ochre should be used. It gives a good colour, but of course the rough-cast will get dirty. (3) Clean Peagrit pebbles are usually used.

"Building Construction."

LONDON, S.W.—W. G. Y. writes: "In your issue for November 26th you gave a roof plan of the house which is being discussed in the 'Building Construction' article. I do not quite follow this plan, and I take the liberty of sending a sketch (not reproduced) of what I think is correct."

The roof is constructed as shown on the roof plan. There are two short pieces of barge, one from D to the corner, and another in a direction at right angles to this, its lower end being at the level of the eave at E. This short piece of eave has only the ordinary slight projection from the face of the wall. The pitch of the piece of roof lying between the valley and the barge at D is flattened to give sufficient ceiling height in the bathroom. The pitch of the roof over schoolroom is also slightly flatter than that of the main block, in order to have the ridge all at the same level. These matters will be made clear in article IV., in which the construction of the roof is described.

Correspondence.

Buildings around Skipton.

To the Editor of THE BUILDERS' JOURNAL.

LEEDS.

SIR,—Referring to the reply to the enquiry which recently appeared in your columns about work to measure around Skipton, I should like to say that Skipton Castle contains one of the finest courtyards I have seen, a noticeable feature being the number of different and beautifully ornamented rainwater pipe-heads. I think your correspondent would spend his time more profitably here than at the church. Bolton Abbey is about 6 miles distant (road or rail), and has much work suitable for measuring. The original west front is most beautiful Early English work. The unfinished tower is a fine example of Perpendicular. Several very interesting country churches can be easily visited by the new Grassington line, such as Burnsall and Grassington, both places having typical Yorkshire manor-houses. I would recommend a small book on the district by H. Speight, sold at all local bookstalls, price 6d.—Yours truly,

H. E. ILLINGWORTH, A.R.I.B.A.

The Parish Church of St. Andrew, Stoke Dameral, is being erected from the designs of Mr. W. D Caröe, architect to the Ecclesiastical Commissioners. A minimum of 1,300 seats is provided for in the completed scheme, but funds at present only permit a small portion to be erected.



NEW OFFICES, WOODGATE, LOUGHBOROUGH. BARROWCLIFF AND ALLCOCK, ARCHITECTS.

TREATMENT OF CRUDE SEWAGE.

LONDON COUNTY COUNCIL REPORT.

THE fourth report to the County Council on the bacterial treatment of crude sewage, prepared by Dr. Clowes, chief chemist to the Council, has been issued.

The conclusions arrived at by the experimental treatment are given as follows:—

"(1) That by suitable continuous undisturbed sedimentation the raw sewage is deprived of matter which would choke the coke-beds, and the sludge which settles out is reduced in amount by bacterial action to a very considerable extent. This reduction might undoubtedly be increased by the preliminary removal of road detritus. (2) That the coke-beds, after they have developed their full purifying power by use, have an average sewage capacity of about 30 per cent. of the whole space which has been filled with coke. (3) That the sewage capacity of the coke-bed, when the bed is fed with settled sewage, fluctuates slightly, but undergoes no permanent reduction. The bed does not choke, and its purifying power undergoes steady improvement for some time. (4) That coke of suitable quality does not disintegrate during use. (5) That the 'bacterial effluent' of settled sewage from the coke-beds does not undergo offensive putrefication at all, even in summer heat, and can never become offensive. That this effluent satisfactorily supports the respiration of fish. (6) That the use of chemicals is quite unnecessary under any circumstances when the above method of treatment is adopted."

The report, therefore, on the strength of these conclusions, states that "it would appear desirable without delay to commence the treatment of the London sewage by the above bacterial method. The construction of the necessary works will take time and will involve expenditure; but, unless it is taken in hand, all considerations tend to show that owing to the increased abstraction of water by the water companies, both at their existing intakes and at the newly-constructed reservoirs for storm-water at Staines, a large portion of the lower river will continuously deteriorate. . . The river cannot be improved by any suddenly-adopted action. If the treatment is introduced without delay and is gradually extended it may reasonably be expected that the increasing deterioration in the lower river water will first be checked and will ultimately be prevented; while the gradual development of the treatment will cause the expenditure to be spread over a period of years, and will prevent it from being unduly burdensome. It must be remembered that the present settling channels would serve, as at present, for settling purposes, but by the altered method of working them they would also act as sludge destroyers. They should, however, be preceded undoubtedly by grit chambers. It must be further borne in mind that the expense involved in the purchase and application of chemicals would be dispensed with. By a considerate adoption of the method, therefore, the expenditure might be distributed, and need not be large."

New Offices at Loughborough. — The offices illustrated on this page have been recently erected for Messrs. Moss & Taylor, solicitors. The lower storey is built of local red sand-stock bricks, with tile lintels to the openings, while above the ground floor the building is of oak framing, with Barrow hydraulic lime rough-cast between the studs. All the windows have leaded lights and steel casements. The roof is of hand-made Staffordshire tiles. The contractors were—Mr. W. F. Harding for the joiner's work and Messrs. William Moss & Sons, Ltd., for the other trades. Messrs. Barrowcliff & Allcock, of Loughborough, are the architects

THE ARCHITECTURAL ASSOCIATION.

ARCHITECTURAL PRACTICE.

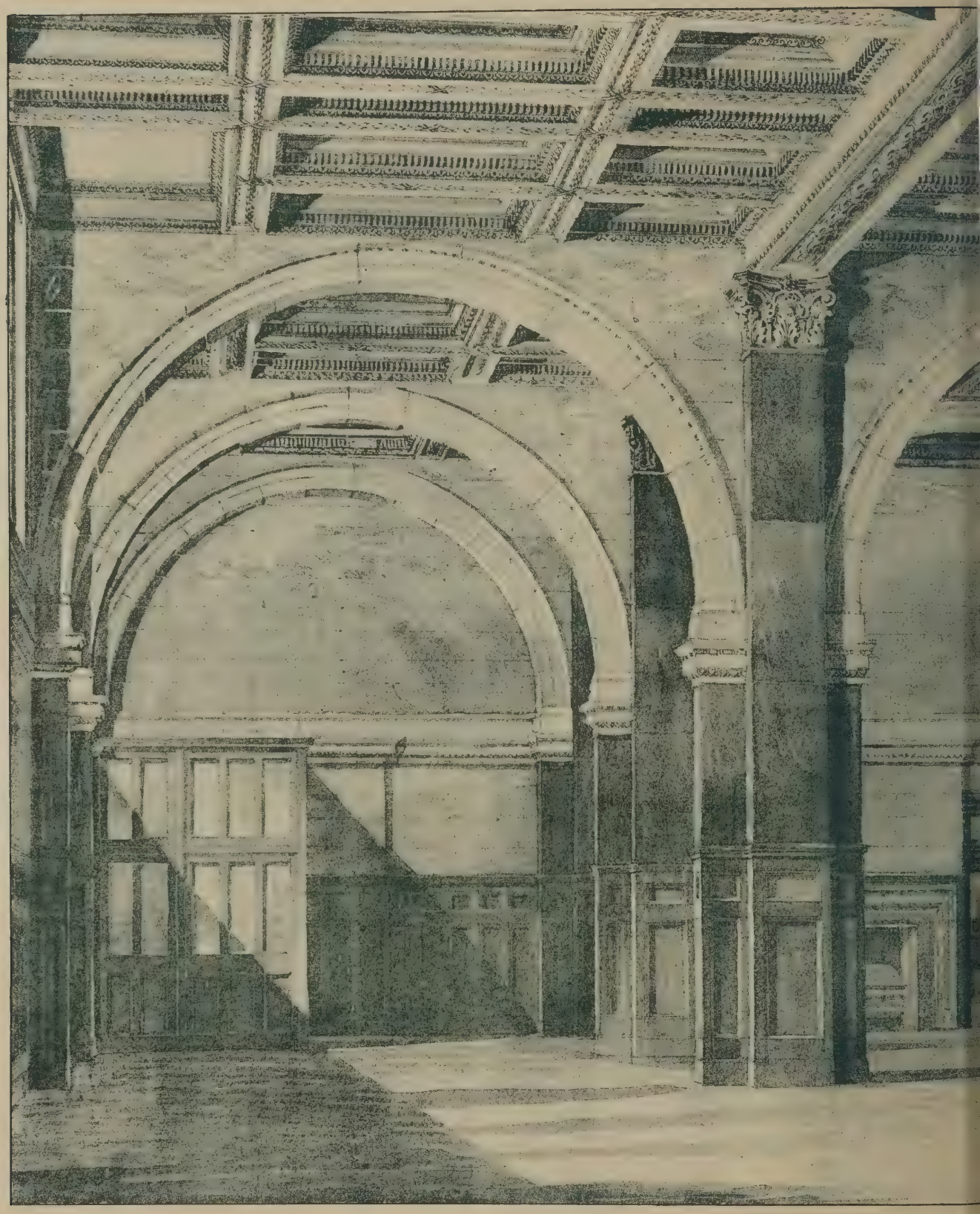
By J. S. GIBSON, F.R.I.B.A.

A MEETING of the Architectural Association was held at No. 9, Conduit Street, W., last Friday evening. Mr. Louis Ambler was in the chair. The minutes of the previous meeting having been read and confirmed, the following were elected members:—Messrs. L. J. Prestwich, E. W. Trounson, K. Gammell, G. Seward Turner, T. S. Inglis, G. T. Hine, F. W. Pomeroy, T. Raffles Davison and J. S. Gibson. Messrs. Lewis Solomon and Herbert Hooper were reinstated members. Mr. James Sivewright Gibson, F.R.I.B.A., then read his paper entitled "Architectural Practice, Real and Ideal," as follows:—

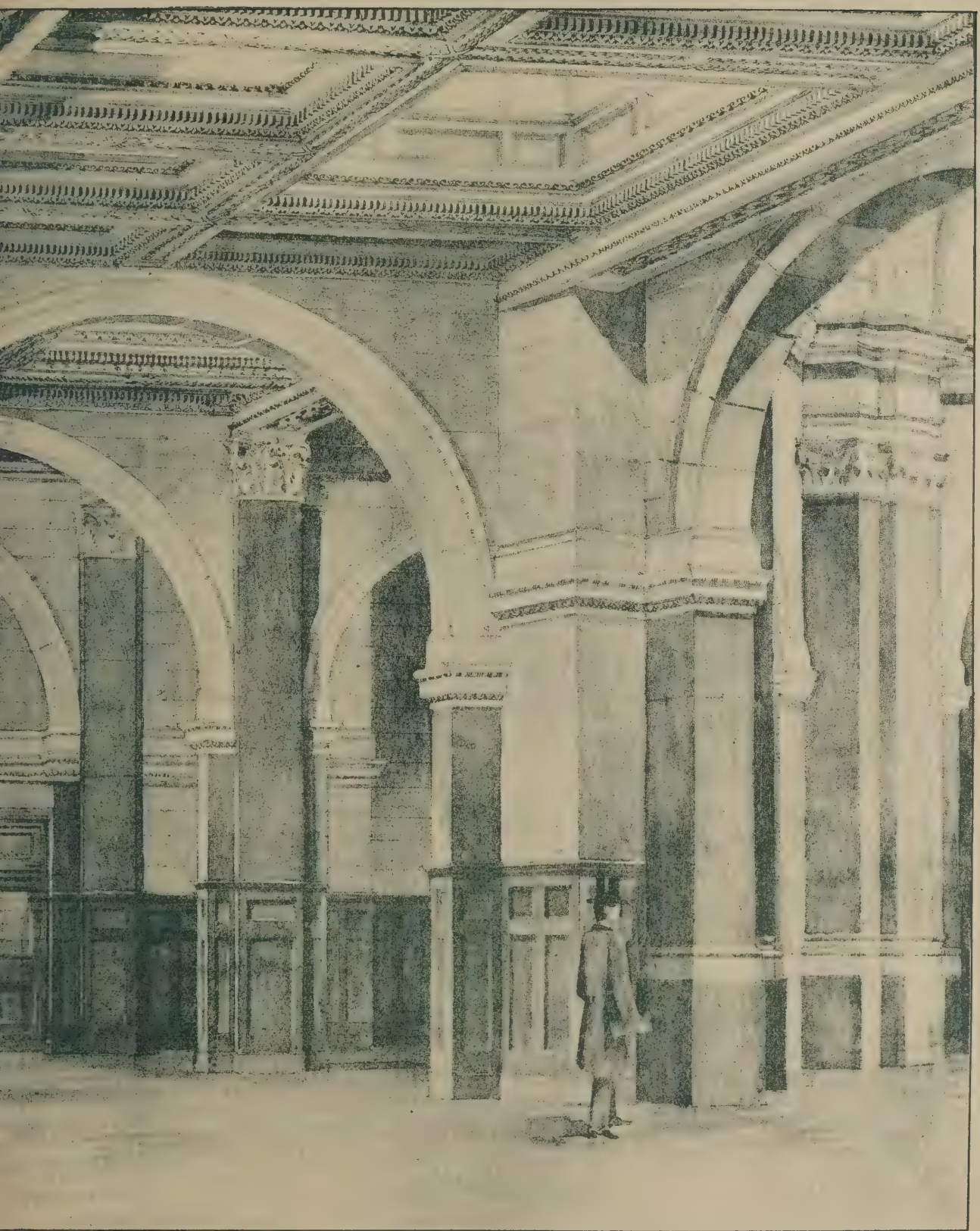
This subject does not need any introduction to this audience; it is perhaps too closely connected with us all to be appreciated at its proper value. The things of our every-day life are apt to get a little out of perspective, and an attempt to put them into their real relation to the other parts of our environment may be of some use. Architectural practice of some sort is always with us, and as a rule we take it as a matter of course, like the rising of the sun, and hardly question its rightness or wrongness, its fitness or unfitness for our time. In so far as we think on any important subjects, we are influenced by two impulses, one to accept things as we find them and the other to inquire into them and discover if possible the reason of their being. A healthy curiosity into the abstract question of architectural practice is a desirable thing, but I am afraid few would so consider it if applied to the mysteries of any individual practice; so in this brief essay on the subject we will try not to offend any honest fellow-architect.

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Supplement to
THE BUILDERS' JOURNAL AND ARCHITECTURAL RECORD,
Wednesday, December 10th, 1902.



EXTENSION OF THE STOCK EXCHANGE, LON



"INK-PHOTO." R. J. EVERETT & SONS, 56 LUDGATE HILL, E.C.

ROBERT L. COLE, F.R.I.B.A., ARCHITECT.

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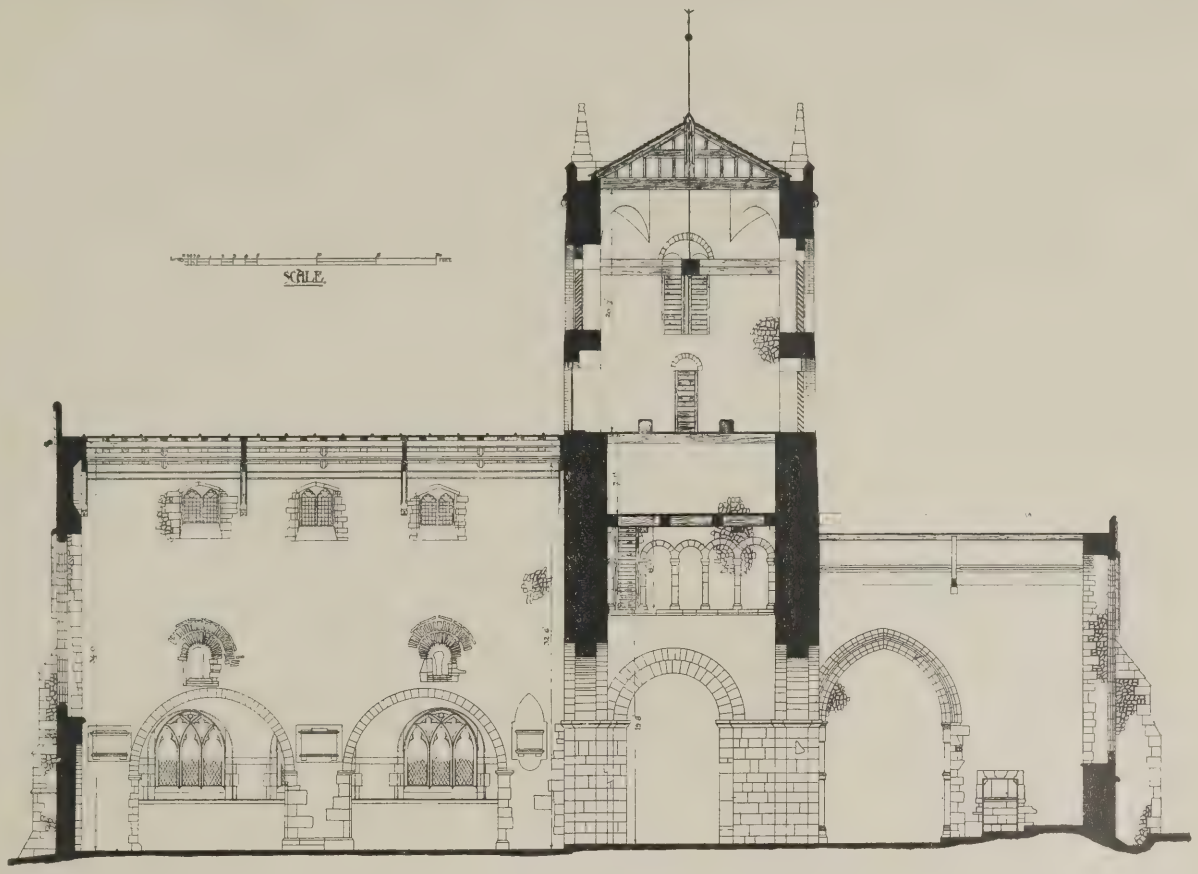
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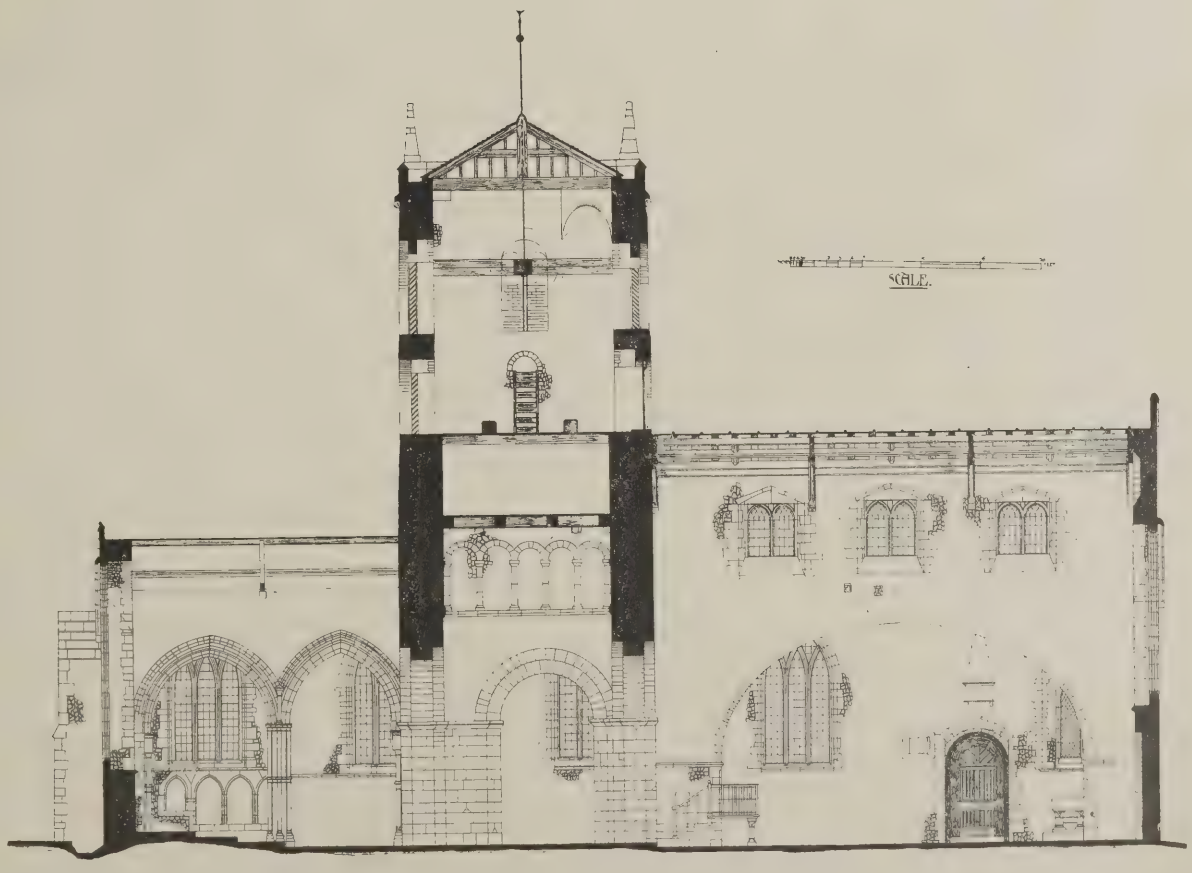
SECTION LOOKING EAST.



SOUTH ELEVATION.



SECTION LOOKING NORTH.



SECTION LOOKING SOUTH.

MEASURED AND DRAWN BY J. F. J. GOODACRE.

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Pupils and Assistants.

It has always appeared to me as very peculiar that the pupil who passes three years in his master's office and, say, another five or six years as assistant, should rarely hear a word on the all-important matter of how to begin and carry on the practice of his profession. Considerable time and labour on the part of the master are often devoted to make him an efficient draughtsman, to give him a workmanlike grasp of construction, to instil within him a knowledge of the simpler methods of planning, and to awaken an appreciation of the great achievements in design, while no attention is given to the more intimate relations between parties, common to all practices.

Some men I know have been exceedingly kind to their former assistants, and have greatly helped them with advice when they have had to deal with a difficult question, but this is usually after they have commenced practice on their own account; but, for the life of me, I cannot see why the experience necessary to deal with many of these difficulties should not be gained in their masters' offices. There are a thousand and one questions involved in our relations with contractors, public bodies, fellow-architects, and clients that might very profitably be discussed in the presence of our assistants, and in which they might take part.

Let us now give a few moments to the consideration of

The Time Antecedent to Practice,

the pupil- and assistant-ship period, if I may so designate it. This must be a period of enthusiasm for the work, the glamour and poetry that the spirit of youth alone can impart must be pre-eminent. Compared with the sculptor or the painter you must have more enthusiasm, for their handiwork is the realization of their ideals, while yours has to be carried out by other hands before it can be judged or appreciated, and at this early stage the chance of this being done is still remote.

The architect's early training is also a much more arduous and complicated one, and I do not think we can reasonably expect to do with less than six or eight years of really hard and earnest labour, but at the end of that period we ought to have such a grasp of our work as will enable us to deal successfully with the problems given us to solve.

During the second half of this initial stage a considerable amount of measured work from good examples, irrespective of styles, should be done, together with sketches which get as near as possible to the heart of the design and leave the art of merely pretty drawing severely alone. A good motto for this period might be—"Draw often and accurately."

The mind should be in a receptive condition, so that each new experience should find soil in which to take root and room to grow.

The world has grown so tiny now that visits to the various architectural centres of Europe may be easily accomplished at this period, and the beneficial effects of the study of the old masterpieces of architecture is invaluable.

We have now arrived at the stage at which the man has spent energy, time and money in acquiring the facility to plan and design, his mind directed into the right channels likely to lead to the development of his most cherished art, and he is confronted with the necessity of using this experience as a means of earning his livelihood. By what methods may he make his capacities known to those desirous of building? In countries where the mass of the people know something of art, and value its beneficial effect on every-day life—say, in France—it is considered a part of

The Government's Duties

to see that the most meritorious and gifted students are rewarded by commissions to paint pictures, design buildings, and execute sculptures on all occasions when public works of this kind are required, and I am glad to think they are often required in such countries. But we manage things differently on this side of the Channel: our Governments think their duty accomplished by making one of their partisans First Commissioner of Works, and this estimable gentleman usually dances to the tune piped by the permanent officials, whose sympathy with, and knowledge of, the arts are painfully evident by their works scattered throughout this long-suffering country.

There are times—intermittent, it is true—when the political minds doubts the omniscience of the official mind, and the political mind boldly resolves to go outside the Government offices for the design of some important building. Until a few years ago it was the custom to throw these matters open to all competitors, and, as a rule, the result justified the action. But of late years these competitions have been restricted to the men whose experience extends over a considerable number of years, and so this avenue is now practically closed to the young architect. From the Government, then, the beginner need not look for any help to establish himself in practice.

A Man's Personal Friends,

in the majority of cases, may perhaps be the means of giving him the first few chances that go to prove the stuff he is made of, and if there is any real good in his work it will bring more in its train. It is during this early period that many men compete for work of all kinds, and by so doing gain an experience in planning and design that is worth the labour and time expended, although they may bring no other reward.

When we think of the fearful and wonderful arrangements in the planning of public buildings, and the more fearful architectural embellishments of these plans which were the painful results of early efforts, we cannot be too thankful that these things never got beyond the paper stage, and that an unappreciative assessor passed them by and thus saved us from having to live down an early indiscretion.

Competitions

are not unmixed blessings to the profession, but we must admit that the buildings erected under this method compare favourably as a whole with the average of works erected without competition.

I should certainly advise all men, for the first few years of their practice, to take part in well-conducted competitions, but be sure the conditions are fair, the assessor competent, and the subject one they know something about. And as soon as the state of their practice warrants it, I should also advise them to let competitions alone.

There are many amusing and curious ways of obtaining a practice, and for all of us it is a serious question to determine how to start on our career. But it has to be settled at an early stage, or else it will effectually settle us. Some cut the Gordian knot by leaving the ranks and embarking into the maelstrom of "trade"—these are the wise but inartistic ones.

Some rely on the artistic blindness of the general public, and run lucrative drawing manufactories on business-like lines. These are the shrewd and "practical" ones. Some have relatives who are something big in the City of finance or Society, and these push their architectural appendages in the same manner as they do shares, or officers in the Army. What Lord Melbourne said about the bestowal of the Order of the Garter, that "There's no damned merit about it," we may safely say in reference to the practice of these fortunate ones.

Some drift into that refuge of mediocrity, an official appointment

In a Government Office,

and in the Office of Works, or such-like departments, do what they can to spread the common-place over the land; these can hardly be said to practise, either really or ideally.

Some enter into competitions, throwing all their energies and skill therein, in the hope that merit will be rewarded. These are the sanguine ones, and sometimes they are not disappointed. Some enter into partnerships with clever men of business, who "manage" the clients while they manage the office. These are the timid ones, likeable fellows who think the chief end of life is to get a cornice perfectly proportioned or a skirting-board properly moulded.

Some attach themselves to the land, and backed by financiers, erect enormous piles of vulgarly common-place type, whose chief quality is bulk, and whose erection in some slight degree justifies the short leasehold system of land tenure; these are the wily ones.

Some develop an absorbing interest in rights of light, and devote precious time to the intricacies of party structures and then pass away full of years and riches; these are the canny ones.

Some renounce art and become crafty, finding that the public will pay more willingly for the abnormal than the artistic; these denounce style, balance, composition, rhythm, grace, and are sharp-sighted leaders of the blind.

Some determine to live for art's sake, and usually die for it instead; these are the foolish and artistic ones.

These are but a few of the thousand and one ways of practising our profession, and each of you must one day settle this great question for yourself.

Turning to the realities of practice one may say, "Happy is the man who knows nothing of them," for

The Whims and Vagaries of the Client

are sometimes as difficult to deal with as the prejudices of the architect. Among the first troubles likely to assail you are the reconcilement of the wants of the client with the amount of money he is willing to spend. In this matter it is well to show, as kindly as possible, the impracticability of expecting £5,000 worth of accommodation for £3,000 cash.

Never Estimate your Buildings too low;

it will prove easier to have a margin to meet the changing views of your client rather than a deficit to ask him to wipe off.

Having satisfactorily settled the money question, you can, with a merry heart, set about the designing of your house; and if your client expresses a strong preference for any unusual disposition of rooms, you must give this your best consideration, for, after all, he is the person who is to live in them. If you have hit on any particularly good arrangement, do not throw it at the good man, but lead him gently to it, and thereby gain his approval, for this is more often won by strategy than by force.

Always be ready with examples of similar cases, and if these are already known to your client so much the better, for then he feels on safer ground; all clients prefer

Experience to Experiment.

When discussing any question never imagine that force of language will atone for lack of reason. You will often find your client expressing his views on the architectural styles, and, if he desires you to design him a house which shall be Palladian Renaissance outside and English Gothic inside, do not regard him so much as a lunatic as one who requires careful treatment, as his appetite for styles may be omnivorous.

Having matured your design and written your specification, do not think that your worries are ended. Under the present system of competitive tendering for work, you may find yourself face to face with a builder who solemnly assures you that Smith's blue lias lime is much stronger and better than Brown's Portland cement, that drain pipes are best jointed with clay, and that footings should rest on the solid earth without the intervention of any concrete under them. Should you meet such a man, no doubt you will inform him of your good old crusted prejudices, and stick to the specification. Having taken a firm stand in your dealings with a builder of this kind, maintain this attitude to the end, and you will generally succeed in getting a creditable job for your client, although at some trouble to yourself. But we must not forget that we are paid for the trouble involved in getting our buildings properly erected, as well as for designing them.

Extras.

One of the surprises of practices in their early stages, is the extraordinarily easy manner in which variations can be made on contracts during execution, so that when the accounts come in they often surprise the architect more than any other person. The apparently innocent suggestion to "omit the moulded beam and side brackets" over an opening, and just "put in a couple of semi-circular arches with a column and two pilasters," has, in some mysterious way, been expanded into about five pages of a bill of extras, the total of which makes the architect gasp. The one safe rule in all these matters is to make a drawing and get a price fixed before any work is done. If, however, you have made the variation without a price having been previously fixed, you may rely upon one friend in your extremity—the quantity surveyor. He is the man who can pull you through. How he does it I do not pretend to know, perhaps he has no bowels of compassion as far as builders are concerned; perhaps there is some freemasonry of which you and I are ignorant, but, at any rate, he will usually succeed in making a bill more palatable to your client and yourself, and we cannot be too grateful to him for these services.

In your dealings with your client, as with your builder, make up your mind on the matter in hand, and never depart from your

Determination.

Do not be so foolish as to expect to get your own way always; you will be a lucky man if you get it occasionally, but if you show signs of indecision of character, depend upon it you will never get it at all. Should your client, upon any vital matter, prefer his way to yours, let him clearly know that the responsibility for success or failure rests on him.

If your work be at a distance, and frequent visits are impracticable, do not be surprised at the variations the builder will quite innocently make on your designs. Some of the most charming results are often thus accidentally obtained.

Years ago a fellow architect said to me, "It's a poor design that does not admit of improvement in execution," and the ripening experience of the translation of drawings into solids will suggest the variations that are improvements. Do not worry too much about

The Finish of your Drawings.

The work itself is the heart of the matter, and, above all things, do not over-elaborate the detail of your buildings. A multiplicity of detail does not ensure a fineness of quality, and I had rather see one good architrave round every door of a house than an abundant variety of common-place sections. You may dash off sketches of façades and interiors, many of the happiest inspirations are the most evanescent, but as you grow older you will find it harder to let your full sizes go out of the office. These are the final stages in your part of the work, and by them you will be, in a great measure, judged.

The requirements of modern civilization are so varied and complex, and we live at such a rapid pace, that even the practice of architecture has been invaded by "specialists" who apparently imagine that a thorough knowledge of technical details will compensate for a lack of knowledge of the art of their profession. There is hardly any modern pretenders so lacking in justification by their works as that of the architectural expert or specialist. It may be argued that this is the only scientific method of dealing with modern complicated requirements, if so, its scientific efficiency hardly justifies its artistic barrenness. My earnest advice to you is to make your practice cover as wide a field as possible,

Shun Specialism,

however lucrative it may appear.

Within the scope of a moderate practice you will find extensive demands made upon your knowledge. Apart from the capacity to design, there must be the ability to design within the limits imposed by the requirements of the Building Acts of London, provincial and urban authorities, to utilize in the best way the properties of steel, iron and concrete, as well as the older building materials—stone, brick and wood. You must also be conversant with the latest patents in pavement lights, have a knowledge of the virtues of glass tiling, know the strong features of burglar-proof sash fasteners, and give a warranty that your door-knobs will never come off the spindle.

Besides this all-embracing knowledge that is required of us, a new danger is rising up, born of our advancing civilization. We are now in the glorious days of

Trusts and Combines,

when everything is on a colossal scale, especially the capitalization, and no doubt the inherent poverty of our profession is the only thing that, thus far, has saved us. Think of the waste of energy going on in the artistic world to-day, of painters and sculptors creating pictures and statues and trying to find a market for them—often in vain. Imagine the immense saving that could be effected by a Pierpont Morgan buying up the output of Sargeant, Whistler, Shannon, Swan, Guthrie, Lavery, Brock, Gilbert, Frampton, and putting these artists on regular employment at a fixed wage, under healthy conditions in a factory complying with all the requirements of the Factories Act, whatever these may be. Saved from the rapacities of the "dealer," in Bond Street and out of it, what magnificent works these men would turn out, while the public would no longer have to go to the dealers to be advised as to the safest thing into which they might invest their money, as if works of art were mining shares and dealt in for the rise or fall of an active market. The only bar to the success of such a scheme comes, strangely enough, from the artists themselves.

I have talked so long on some of the realities that little time is now left in which to speak of the ideal practice. It is like the promised land—before our eyes, but never beneath our feet. Of what would such a practice consist? we ask, and every one's temperament will dictate a different answer.

The Ideal Practice

must surely be that which ensures the evolution of the individual in the advancement of his art.

To progress along parallel lines with your art must be a desirable thing, though it can hardly be said that, as a rule, our practice affords many facilities of this kind.

Some requirements necessary to this end are common to many of us; these may be summarised as follows:—

Work which is congenial to our temperament, and in which a healthy interest may be taken.

Time to think out our problems as a whole, and evolve slowly their detail. Absence of all "rush and worry."

An appreciation of the good points in our designs by those for whom the work is done.

A few assistants, good men and true, who will carry the knowledge gained a step further on their own account.

I could guess the young practitioner's ideal to be that his buildings would turn out as fine as his conception of them, but the hard facts of reality destroy the charm of those imaginings.

I could guess the middle-aged practitioner's ideal to be to begin again, with all the vigour and enthusiasm of youth, coupled with the matured experience of his years, but this combination is impossible of realisation.

I could guess the old man's ideal to be to be spared to practice for a few years that great art to the threshold of which many years of travel has brought him, but the inexorable summons comes, he steps across another threshold, and the door closes behind him for ever.

As far as the necessities of living will permit us, I think we should do all we can to realise our ideal practice, to advance the science and art of our calling, to do justice to our clients, our builders, and ourselves, and to uphold the honour and dignity of our profession.

Mr. Cole A. Adams proposed a vote of thanks to Mr. Gibson, which was seconded by Mr. A. O. Collard, and supported by Messrs. E. Greenop, C. H. Brodie and Louis Ambler.

SOUTH-WESTERN POLYTECHNIC.

AN interesting departure was made at this centre (at Chelsea) in the session 1901-1902, by the introduction of a course of lectures on "The History of Architecture," given by Mr. Banister Fletcher, A R.I.B.A. The course—a sessional one—was attended by thirty-six students, and at the examination held at the conclusion of the course, thirteen students were presented, of whom all passed and obtained certificates, three students qualifying by their examination work for the sessional examination in honours. All of these, namely, J. G. Wiles, G. Wilson and A. C. Goulder, obtained this sessional certificate in honours for the following work:—Mr. J. G. Wiles, illustrated essay on "Expression in Architecture"; Mr. G. Wilson, illustrated essay on "Use of the Human Figure in Architecture"; Mr. A. C. Goulder, set of measured drawings with historical essay on Mickleham Church, Kent. In the present session the series of lectures is again being delivered, and, with the aid of the lantern, Mr. Banister Fletcher is showing a large and unique collection of slides, illustrating subjects bearing on the course. In addition, the lecturer has a valuable collection of large lecture diagrams specially prepared, and at the sketching classes, which take place after the lecture, the students are enabled to draw from these, and so at the end of the course have a valuable record of architectural ornament and details of buildings. The next term commences on Monday, January 19th, when the subject dealt with will be "Gothic Architecture in Europe." It is gratifying to learn that the students at present in attendance number forty-eight, and that the average attendance is forty-two.

ASPHALT SPECIFICATIONS.

New York's Requirements.

THE new Administration has finally revised the specification relating to asphalt pavements in New York City.

It is as follows:—

The Binder Course.

The pavement proper shall consist of a binder course 1in. thick and a wearing surface—inches thick and equal to the pavement mixture hereinafter described. The binder shall be composed of suitable clean broken stone passing a 1½-inch screen, not more than 10 per cent. of which shall pass a No. 10 screen. The stone will be heated in suitable appliances, to not higher than 325 degs. Fahr., and then thoroughly mixed by machine with asphaltic cement equivalent in composition to that hereinafter set forth, at 300 degs. to 325 degs. Fahr., in such proportion as shall be acceptable to the engineer.

The binder must be hauled to the work and spread while hot upon the foundation to such thickness that after being immediately compacted by ramming and rolling until it is cold its depth shall be at no place less than 1in. and its upper surface shall be parallel to the surface of the pavement to be laid. Upon this binder course must be laid the wearing surface, or pavement proper.

The Pavement Mixture.

The pavement mixture for the wearing surface shall be composed of—(1) Asphaltic cement (refined asphalt, heavy petroleum oil or liquid asphalt); (2) clean sharp sand; (3) finely-powdered inorganic dust.

(*a*) *Asphalt.*—The term asphalt shall be construed to signify any natural (mineral) bitumen, liquid or solid, which is adhesive, viscous, ductile and elastic, or which becomes adhesive, viscous, ductile and elastic on the application of heat. Said natural bitumen may be either in a state of purity or in admixture with native, non-bituminous matter.

(*b*) *Refined Asphalt.*—The refined asphalt shall be obtained by refining crude asphalt until the product is homogeneous and free from water. Such crude and refined asphalt shall be in all respects satisfactory to the engineer. Not less than 60 per cent. of the pure bituminous matter of the refined asphalt shall be soluble in boiling Pennsylvania petroleum naphtha (boiling points, 40 degs. to 60 degs. C.), or, if the refined asphalt does not contain 60 per cent. of its pure bituminous matter thus soluble, but is satisfactory in other respects, the deficiency may be supplied by fluxing the refined asphalt in such manner and with such percentage of liquid, viscous asphalt, complying in all respects with the test enumerated in paragraph (*c*), as the engineer may require.

Heavy Petroleum Oil.

(*c*) Heavy petroleum oil, if used in the manufacture of the asphaltic cement as hereinafter described, shall be a petroleum from which the lighter oils have been removed by distillation without cracking, until it has a specific gravity of 18 degs. to 22 degs. Beaume, and the following properties:—(1) Flash test not less than 300 degs. Fahr. (the flash test shall be taken in a New York State closed oil tester); (2) five tests not less than 350 degs. Fahr.; (3) no appreciable amount of light oils or matter volatile under 250 degs. Fahr.; (4) matter volatile at 350 degs. Fahr. in twenty-four hours, less than 8 per cent. (the test for "matter volatile at 350 degs. Fahr." shall be made with approximately 50 grains of oil, in an open flat-bottom cylindrical dish 2⅜in. in diameter and 1⅜in. high—the thermometer shall be applied so as to register the temperature of the soil); (5) it shall be free from coke and any manner or form of adulteration.

Liquid asphalt, maltha, or any other softening agent fulfilling the above tests and approved by the engineer, may be used in place of heavy petroleum oil.

(*d*) *Asphaltic Cement.* — When refined asphalt is not already of the proper consistency, an asphaltic cement shall be prepared by fluxing refined asphalt with heavy petroleum oil or other approved softening agent, complying with the above specifications, at a temperature between 250 degs. and 350 degs. Fahr., and in such proportion as to produce an asphaltic cement of a consistency to be determined by the engineer. As soon as the fluxing agent is added the entire mass shall be agitated by an air blast or other suitable appliance, and the agitation continued until a homogeneous cement is produced. The asphaltic cement must never be heated to a temperature exceeding 350 degs. Fahr. If asphaltic cement containing over 10 per cent. of foreign material is kept in storage, it must be thoroughly agitated when used, as must also all dipping kettles while in use.

(*e*) *Sand.*—The sand to be used shall be hard-grained, moderately sharp and clean, not containing more than 1 per cent. of clay or loam. On sifting, the whole shall pass a 10-mesh screen, 20 per cent. shall pass an 80-mesh screen, and at least 7 per cent. shall pass a 100-mesh screen.

(*f*) *Inorganic Dust.*—The inorganic dust shall be finely-powdered carbonate of lime, granite, quartz, or other inorganic dust approved by the engineer. Such inorganic dust must be of such a degree of fineness that the whole of it shall pass a 30-mesh screen, and at least 66 per cent. a 200-mesh screen.

The Wearing Surface.

(*g*) The materials complying with the above specifications shall be mixed in proportions by weight, depending upon their character. These proportions will be determined by the engineer, but the percentage of matter soluble in carbon bi-sulphide in any pavement mixture shall not be less than 9½ nor more than 12 per cent. If the proportions of the mixture are varied in any manner from those specified, the mixture will be condemned, its use will not be permitted, and, if already placed on the street, it will be removed and replaced by proper materials at the expense of the contractor.

The sand and the asphaltic cement will be heated separately to approximately 325 degs. Fahr. The stone dust shall be mixed, while cold, with the hot sand. The asphaltic cement will then be mixed with the sand and stone dust, at the required temperature and in the proper proportion in a suitable apparatus so as to effect a thoroughly homogeneous mixture. Sand boxes and asphalt gauges shall be weighed in the presence of inspectors as often as may be desired, and samples of any of the materials used shall be supplied to the inspector of asphalt at any time, and the engineer or his representative shall have access to all branches of the work at any time.

Laying the Pavement.

(*h*) The above described materials shall be mixed in the determined proportions in a standard asphalt mixer and carried to the street at a temperature ranging from 250 degs. to 325 degs. Fahr. and spread upon the binder to such a depth as will ensure a thickness of 2in. after ultimate compression. This compression will be attained by first smoothing the surface with a hand roller or a light steam roller, after which hydraulic cement will be swept over it, when the rolling will be continued with a 10-ton roller, until no impression is made upon the surface. A space of 12in. next the kerb shall be coated with asphaltic cement, and the same ironed into the pavement with hot smoothing irons.

Rock Asphalt.

Should any of the rock asphalts be used, the material shall be a natural bituminous limestone or sandstone, or a mixture of the two, and shall be prepared and laid in the following manner.

The lumps of rock, after being mixed in the proper proportions, shall be finely crushed and pulverized, and the powder passed through a 20-mesh sieve. In case of the use of any asphaltic limestone, or of a mixture of an asphaltic limestone and an asphaltic sandstone, nothing whatever shall be added to or taken from the powder obtained by grinding the natural bituminous rock. Should it be proposed to use an asphaltic sandstone only, which contains more than 9 per cent. of natural bitumen, of such a consistency that the resulting pavement would prove too soft to sustain traffic, the material, if satisfactory in other respects, should be made to conform with the requirements of section 21, by the addition of inorganic dust, in such manner and in such proportion as the engineer may direct. The powder shall contain from 9 to 12 per cent. of natural bitumen. This powder shall be heated in a suitable apparatus to 200 or 250 degs. Fahr., and must be brought to the ground at a temperature of not less than 180 degs. Fahr., in carts made for the purpose, and carefully spread, as specified for refined asphalt pavement, to such depth that after having received its ultimate compression it will have a thickness of 2½in. when laid on concrete. When the foundation is other than concrete it shall be laid on a 1in. binder course, as heretofore described, and the nett thickness of the rock asphalt wearing surface after compression shall be 2in. The surface shall be rendered perfectly even by tamping, smoothing and rolling with heated appliances of approved design.

FERRO-CONCRETE.

The Experiments of a French Engineer.

SOME very interesting experiments on reinforcing concrete by means of metal are now being discussed in the "Genie Civil" by M. Considère. In his previous work M. Considère has endeavoured to rationalise the reinforcement of masses of concrete against tensile strains by means of metal bars; but his later experiments have been concerned with the question of increasing also the compressive strength of such masses by a suitable distribution of metal. He finds that the most economical method of strengthening a concrete column is to lap it round with wire, metal used in this way being from two and a half to three times as efficient as an equal weight arranged as straight bars parallel to the line of thrust. The wire lapping prevents failure from shear or from "swelling." Some of the results obtained are very remarkable. A number of cylinders 40 millimetres (1·57in.) in diameter were moulded out of a mixture of 400 kilogrammes (881lbs.) of cement, with 1 cub. metre (1·31 cub. yds.) of sand, and were wrapped with fine wire, the volume of the latter being 0·034 per cent. of the total volume. These were tested by crushing at different ages, from eight up to one hundred days. Similar specimens without the iron were also moulded and tested, the comparative results obtained being as follows:—

Age of specimen, days ..	8	14	22	23	100
Crushing stress, pounds per sq in. with iron reinforcement	4,846	6,543	7,368	4,935	10,525
Crushing stress, pounds per sq. in. without iron reinforcement	569	711	853	853	2,418

Weight for weight, the hundred-day old reinforced cylinder is very nearly as strong as iron. In some further experiments the cylinders tested were 15 centimetres (5·90in.) in diameter, and varied in length from 0·50

metre (19·7in.) to 1·30 metre (51·1in.). The mixture used was 0·800 cub. metre (1·046 cub. yd.) of gravel, 0·400 cub. metre (·523 cub. yd.) of sand, mixed with, in some cases, 300 kilogrammes (661lb.) and in others 600 kilogrammes (1,323lbs.) of cement. The short specimens were tested in the laboratory of the Ecole des Ponts et Chaussées. The block without iron failed at a load of 1,052lb. per sq. in., whilst another, which was wrapped with a spiral of hard-drawn iron wire ¼in. in diameter, wound to a pitch of 1·18in., did not fail till the stress reached 5,120lb. per sq. in.; and a third, in which the wire used was 0·167 in diameter, wound to a pitch of ·59in., did not fail under a load equivalent to 5,405lb. per sq. in., which was the maximum the testing machine was capable of exerting. Another cylinder, in which the bulk of the metal was in the shape of longitudinal bars, failed at a stress of 2,418lb. per sq. in. M. Considère states that the latter prism, as well as the specimen without iron, both failed suddenly, whilst with the spiral-wound blocks failure was very gradual. It was further noted that in the best of the spiral-wound blocks the amount of compression was considerable, being as much as 3·55 millimetres per metre before any signs of cracking could be observed.—("Engineer.")

Law Cases.

Leeds New Building By-laws.—On December 2nd Mr. William Brown, trading as Messrs. Haste & Brown, Bramley, appeared in answer to a summons at the Leeds Police Court for putting in joists 5⅛in. by 3in., whereas according to the by-law they should have been 8in. deep and 3in. wide. It was submitted on behalf of the defendant that the joists in question were of steel and therefore much stronger than wooden ones of the prescribed dimensions. They would support 2½ cwt. per ft. super., and the greatest strain to which they could be put in defendant's business was 1 cwt. per ft. super. The stipendiary magistrate reserved his decision for a week

Bricks and Mortar.

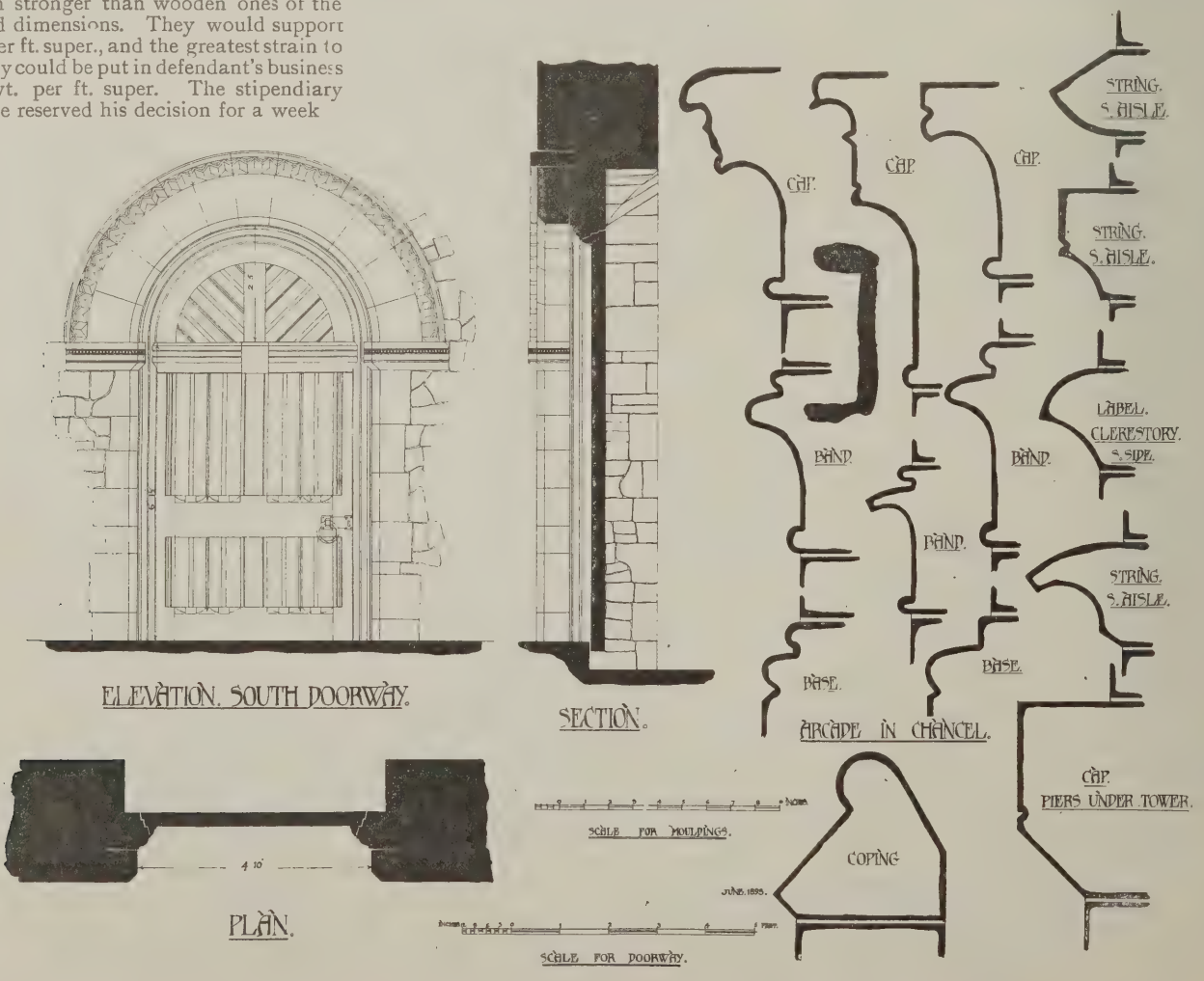
Aphorism for the Week.

An architect with but one idea is like the painter who could paint no subject but the judgment of Solomon, which he repeated large and small in every turn of his patron's mansion.—HAZLITT.

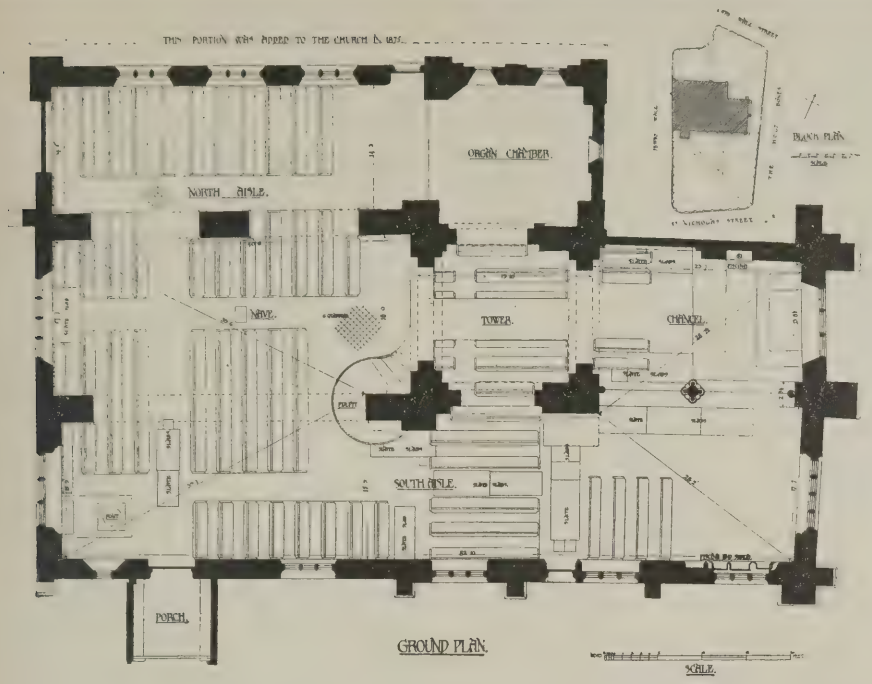
Our Plates. ST. NICHOLAS'S CHURCH is said to be the oldest in Leicester. It consists of nave, chancel, north and south aisles, and has a square Norman tower much patched with brickwork and formerly surmounted by a spire, which was taken down owing to its insecure condition. It contains three bells bearing the respective dates 1617, 1656 and 1710. Two chapels at the east end, dedicated to St. Augustine and St Columba, were taken down as early as 1087. A new north aisle was added in 1875, and takes the place of an old Norman aisle which was taken down in the seventeenth century. The organ covers the greater portion of a fine white marble slab, which is supposed to be one of the most ancient gravestones in Leicester. The drawings reproduced gained for Mr. J. F. J. Goodacre the third prize offered by the Leicester and Leicestershire Society of Architects in 1893 for measured drawings, and also a National book prize in 1894.—The Mayo School of Arts, Lahore, India, is built of red brick in the late Mogul style, and is a good example of brick architecture in Northern India. No stone is to be found in the neighbourhood of Lahore; little is used in this building, and what is used has been brought from Delhi (some hundreds of miles away). It is a red sandstone of much about the same colour as the bricks employed, and is therefore not effective. It will be noticed in the drawing (by Mr. W. Campbell Oman, A.R.I.B.A.) that stone is only used for the corbels at the imposts of the openings. The tracery in the heads of the arches is of intricate geometrical design in purpose-made bricks.

Honeychurch Church. AN appeal is being made for funds to restore the church at Honeychurch. This edifice is one of the few Early English churches in Devonshire—perhaps the only one that was left almost untouched by the church builders and church restorers of the fifteenth and sixteenth centuries—and, consequently, we have here surviving till to-day, but in imminent danger of absolute destruction, a building with some of the most beautiful and most interesting specimens of the ecclesiastical architecture of the twelfth century, and some, perhaps, even earlier. The Early English arch between the chancel and the nave, which is of special architectural value, has cracked and parted by reason of the outward pressure of the roof, and the beautiful tower is bulging and showing signs of falling.

The Cloth Hall at Newbury. THE Jacobean Cloth Hall at Newbury, having been purchased from a body of charity trustees and restored, at a cost of about £2,000, has been converted into a local museum and art gallery as a memorial of the late Queen Victoria. The restored Cloth Hall belonged to the Fellowship of the Weavers of Newbury, a company founded in the reign of Henry VIII. and incorporated by Royal Charter in 1601. In the reign of Edward III., Newbury was a place of great commercial importance, and sent no less than three deputies or representatives to a great conference at Westminster, the chief business of which was to frame laws for the



CHURCH OF ST. NICHOLAS, LEICESTER. MEASURED AND DRAWN BY J. F. J. GOODACRE.



CHURCH OF ST. NICHOLAS, LEICESTER. MEASURED AND DRAWN BY J. F. J. GOODACRE.

management and regulation of the woollen manufacture in England. In the sixteenth century the production of a superior kind of broadcloth made their popular local hero, John Winchcombe, known as Jack of Newberie, famous in history. The Cloth Hall was built in the time of James I. Messrs. George Elms & Son were the contractors, and Mr. Frank Mount was the architect of the restoration. There are practically three floors, and two of these are available for objects of local interest, which will form a museum. The ground floor is laid with large square paving tiles, and the wainscot consists of an interesting collection of Dutch tiles illustrating Dutch scenes. The entrance lobby is laid with squares of black and white marble, and a fine oak staircase leads to the second storey, the floor of which is laid with English oak. Above this is a loft running the whole length of the building, a few feet below the old open-timbered roof. The Jacobean carving on the exterior has been carefully preserved.

York Architectural Society. A GENERAL meeting of this Society was held last week when the president, Mr. C. H. Channon, F.R.I.B.A., delivered his inaugural address. In the course of his remarks he referred to the number of architects in the district of undoubted ability and repute who still held aloof from joining the Society, and expressed a hope that some means might be devised for bringing the members of the profession more closely in touch with each other. In referring to the question of the Institute and allied societies, mention was made of the action taken by the Northern Architectural Association. A short time ago the hon. secretary of that Society wrote to all the free libraries in Northumberland and Durham and asked them to obtain for circulation the books mentioned in the list recommended to students by the Royal Institute of British Architects, and in most cases the request had been readily complied with. The president then offered some instructive and practical remarks on the planning and construction of fever hospitals, this subject being the one which had been before the students during the year At the conclusion of his address he presented prizes offered for competition by the Society to students, the subject being "A design for a small fever hospital." The drawings placed first in order of merit were by Mr. J. O. Thompson, and the second by Mr. D. Harvey.

A New York Store. THE New York department stores are colossal buildings. One firm does business, with the assistance of 4,000 employees, in a building in which the floor space is twenty-four acres. A new building of this kind was opened recently, into which many improvements have been introduced. The immense floor area is not swept and dusted. The cleaning is done by a mechanical arrangement. An arrangement of piping goes to every part of the building, with many hundred outlets for hose attachments. A steam-pump in the engine-room exhausts the air in the pipes, and as the hose attachment is moved over the floors, carpets and shelving, all dust and dirt are sucked into the tubes and go whirling down to the crematory in the basement, where they are destroyed. Besides these things, there are large chutes down which the accumulation of paper boxes and wrappers of all sorts descends to give fuel to the engines. Pure filtered water, cooled by an ice machine to a temperature of 40 degs., is pumped to every part of the building; for those who will be thirsty on hot days, and for the preservation of perishable goods in the grocery and other departments, the ice machine makes 2 tons of ice daily. In the building there are thirty-three hydraulic lifts. There are four moving staircases, which also help to move the crowds to the different floors, and these have a capacity of 40,000 persons an hour. An innovation here introduced for the first time is the pneumatic parcel tube. Your purchase descends to the huge receiving room, where it is wrapped up and returned like a flash to the employee who makes the sale. There are eighteen miles of this brass tubing in the pneumatic system. For warming the air in winter and cooling it in summer pure air is drawn through shafts from above the roof, and is filtered through three screens and passed through a tempering cell, after which huge circular fans distribute the warmed air through galvanized tubes to all parts of the building. Other exhaust fans empty the building of the used-up air, the plant working at the rate of 12,000,000 cub. ft. per hour.

Views and Reviews.

Builders' Steam Plant.

The scope of this little book hardly allows us to deal with it at any length; but it will undoubtedly be of service to many builders and contractors and their foremen who have to look after any steam engines used on their works. The author does not attempt to set forth the mechanics of steam engines, but deals with the defects to which they are liable. Chapter 1, for example, deals with water in cylinders and leakages, and then follow chapters on knocks, lubrication, miscellaneous matters, indicator diagrams, valve setting, and some remarks on the choice of an engine; all of which should be of use and help to those concerned with building operations where steam-power is used.

"The Care and Management of Stationary Steam Engines," by Charles Hurst. London: Crosby Lockwood & Son, 7, Stationers' Hall Court, E.C. Price 1s. nett.

Carpentry and Joinery.

We have received the first two parts of a new volume, published under the able editorship of Mr. G. Lister Sutcliffe, A.R.I.B.A., in similar form to "Modern House Construction," which he also edited and was published by the same publishers. The book was undertaken with the idea of providing a more up-to-date and complete work on the lines of Newland's "Carpenter and Joiner's Assistant," which has been accepted as an authority for nearly half a century. Carpentry and joinery is to-day done under a widely different system than it was when Newland published his volume. Woodworking machinery, for instance, has created almost a revolution and is in universal application. It is therefore apparent that the want of such a book as this is considerable, and the need, we hope, will be worthily filled by this publication. It is, of course, too early to judge of the success or failure in complete form from these two volumes, but so far as we can judge from these it promises to be a complete success. The work will be divided into sixteen sections, namely, styles of architecture, woods, woodworking tools and machinery, drawing and drawing instruments, practical geometry, strength of timber and timber framing, carpentry, joinery and handrailing, air-tight case-making, cabinet-making, wood-carving, shop management, estimating, building law, and index and glossary, &c. These sections are being written by experts in their respective branches. In the first volume Mr. G. Lister Sutcliffe contributes the first section on architectural styles. This, of its kind, is a good summary of the subject, containing fairly safe statements, but it would have been better if fewer archæological facts and less of the drybones of architectural history had been given in the already limited space available, and more devoted to showing the reasons and causes of the forms, namely, the evolution of architecture, drawing lessons for everyday guidance. Of course the section is intended solely for craftsmen, but a little knowledge is a dangerous thing—the deplorable state of joinery detail to-day shows that; and we would therefore have considered it better if this book had dealt with it either instructively and suggestively or not at all, leaving the joiner to obtain his knowledge of the styles from the books devoted to history alone, where their completeness would force anyone studying them to obtain a fuller knowledge, when he might be trusted to form an approximately right judgment. Such a scanty article as this can only lead to harm if read by craftsmen as giving a sufficient view of the subject, and if not so read is a useless waste of space. The second section on "Woods: their Characteristics" is by Mr. Frank Tiffany, an authority on the subject, and is most complete, and undoubtedly will be of the greatest use. This

section is continued in the next volume, which contains in addition Section III., on "Wood-working Tools and Machinery," by Mr. A. Mackintosh. Numerous illustrations are given, and it appears to be a complete discussion of the subject. The cover, designed by Mr. Talwin Morris, is an "Art Nouveau" inanity, with absolutely nothing to recommend it. For a volume intended as a work of reference something more stable should have been chosen.

"The Modern Carpenter and Joiner and Cabinet-maker," edited by G. Lister Sutcliffe, A.R.I.B.A. London: The Gresham Publishing Co., 34, Southampton Street, Strand, W.C. To be published in eight divisional volumes, price 7s. 6d. each.

Keystones.

Lincoln Cathedral.—A new stained glass window has been erected in the Angel Choir.

Change of Address.—Messrs. Anthony Scott & Son, architects, have removed from 46, William Street, Drogheda, to 34, Lower Sackville Street, Dublin.

New Premises in Fleet Street, E.C., have just been erected for Sell's Advertising Agency, Ltd. Messrs. Still, Wheat & Luker were the architects, and Messrs. Perry Brothers, of Cambridge Heath, the builders.

A new Pulpit in Urney Parish Church has been erected as a memorial to the late Dean of Derry and Rector of Urney. It is of Gothic design, and made of carved oak, and was constructed by Messrs. Harry Hems & Sons, Exeter, and erected by Mr. James M'Clay, of Strabane.

A Monument which was recently sent out from England has been erected at Belmont, in the little cemetery of Thomas's Farm, to the memory of the officers and men of the 1st Battalion 5th (Northumberland) Fusiliers who were killed in action at the battle of Belmont, on November 23rd, 1899. The memorial is of white marble, and consists of a Celtic cross resting on a bevelled base.

Westminster Abbey Pulpit.—The pulpit which has been in the nave of Westminster Abbey for forty years has been presented to the new Cathedral of St. Anne at Belfast. The authorities of the Abbey are substituting for this pulpit an ancient wooden one, from which it is believed Archbishop Cranmer preached before Edward VI. The value of the gift, so far as mere money is concerned, has been estimated by competent authorities at £2,000. The pulpit was designed by Sir Gilbert Scott, R.A. It is octagonal in shape, composed of carved yellow Mansfield stone and coloured marble, and is a mixture of the Early English and French styles.

Peterborough Cathedral.—Mr. G. F. Bodley, R.A., has reported to the Peterborough Cathedral Restoration Committee that he finds one bay in the south aisle of the choir is in a very unsatisfactory state. There has been a settlement, and cracks have occurred showing through the depth of some large stones. The transverse vaulting-rib in this bay is quite out of its proper shape. It has been shaken and is twisted, and the rubble "filling in" around has been disturbed. The settlement has affected the adjacent window eastward in the aisle wall; one of its mullions is bent and cracked, and part of the stone arch has slipped. At the annual meeting of the Restoration Committee last week it was decided that the work necessary be proceeded with at once, and it will dispose entirely of the balance the committee has in hand. The sum of £1,500 is still required for the repair of the north and south transepts, which will complete the great work of preservation commenced in 1883. The cost of the restoration of the famous west front has been £13,000.

Cow Honeybourne Church has been repaired. Messrs. Roberts Brothers, of Evesham, were the contractors.

Change of Address.—Messrs. Charles Bell, Withers & Meredith, architects and surveyors, have removed from 3, Salters Hall Court, to 50, Cannon Street, E.C.

A Statue of King Edward VII., in bronze, and a replica of that which has been presented to Madras, has been erected at Reading. The figure is 9ft. in height, and stands upon a pedestal of Italian granite. The sculptor is Mr. G. E. Wade.

Woburn Abbey Stables.—The St. Pancras Ironwork Co., Ltd., have recently completed the fitting up with their patent stable fittings of an extensive range of stabling at Woburn Abbey. This is the second order of this nature with which they have been recently favoured by the Duke of Bedford.

Partnership.—Mr. R. Singer Hyde, M.S.A., of Worthing, has taken into partnership his son Mr. R. R. Wentworth Hyde, M.S.A. Mr. Hyde, senior, for upwards of a quarter of a century has been a well-known practitioner in the south of England, and was for some time in practice with the late Mr. Edmund Scott, of Brighton.

A Carnegie Library Competition.—The Barry Free Libraries Committee recently considered the award of Mr. Thomas E. Colcutt, in respect to the competitive designs for new municipal buildings, including the free library towards which Mr. Carnegie has given £8,000. The first prize was awarded to Messrs. C. E. Hutchinson and E. Harding Payne, 11, John Street, Bedford Row, London, W.C.; 2nd, Mr. W. H. Ashford, 424, Stratford Road, Park Hill, Birmingham; 3rd, Mr. George Dicken Lewis, Talbot Chambers, Shrewsbury. The buildings will be constructed to the plans of the successful competitors.

St. James's Church, Radley, has been thoroughly restored under the direction of Mr. J. Oldrid Scott, F S.A. The original contract placed with Messrs. Wyatt & Son, of Oxford, was for £1,055, for new roof, under-pinning the walls, restoring the tower and battlements, and renovating the interior. As the work proceeded, however, the building was found in a far worse state than was anticipated. The chancel roof was in decay, necessitating complete renewal, the chancel arch required re-building in stone, and expenditure on the tower ceiling was necessary. These additions have brought the total cost to £1,350.

Reinforced Construction for a Church.—A Wesleyan chapel at St. Sidwell's, Exeter, is being erected at a cost of about £6,000. The construction of the building is being built on the Cottanein system of reinforced construction. It is a system of steel-cored brick and steel-cored cement construction. The interesting points in the construction of the church are the steel-cored brick caisson foundations, the steel-cored brick hollow walls, the reinforced cement gallery and the octagonal dome with lantern and cupola above. The walls of the church are being constructed of steel-cored brick in two thicknesses of 3in., with air-space between, which will be utilised for heating and ventilating purposes. The octagonal domed roof will be constructed of two thicknesses, with air space between, the inner surface being formed of steel-cored brick and the outer surface, exposed to the weather, of steel-cored cement finished in cement. No zinc or lead will be employed for the construction of the gutters, flashings, or flats. All these will be formed of cement. The plans were prepared by Mr. F. J. Commin, of Exeter. The contractor is M. Paul Cottancin, of France, the joinery work being in the hands of Messrs. Westcott, Austin & White, of Exeter.

A new Organ costing £460 has been placed in Claines Church, Worcester.

In the R.I.B.A. Journal for December 6th there is a very useful and practical article on "Fire Escapes in American Commercial Buildings" by C. A. Daubney.

A new Drawing Office at Keyham is to be erected for the chief engineer's department in Keyham Yard, Devonport. It will have grey limestone facings and Portland stone dressings. The cost will be about £9,000. The Admiralty have accepted the tender of Messrs. A. R. Lethbridge & Son, of Tracy Building Yard, Plymouth, and the work is to commence at once.

A War Memorial Competition. — The assessor, Mr. R. Seldon Wornum, in the competition for the proposed memorial to Old Cliftonians who fell in South Africa, has awarded the first premium to Messrs. Walter S. Paul & James, of Baldwin Street, Bristol; the second to Mr. E. W. Marsnall, of 139, Oxford Street, London, W.; and the third to Mr. Percy S. Worthington, M.A., of 46, Brown Street, Manchester.

Fluidity in Marble.—Another instance of fluidity in marble under pressure is pointed out by Mr. Spencer Pickering in a letter to "Nature." It is, or was, to be seen in the Alhambra, at Granada, where two alabaster slabs which formed the jambs of a doorway, owing to the pressure brought to bear upon them by the settlement of the building, have bulged out from the wall by as much as 6in. or 7in. The slabs were about 7ft. long, 1ft. wide and about 2in. in thickness.

The Death of Mr. John Hungerford Pollen, M.A., lessens the very small number of survivors of the group of men who had so much to do with making the collections at South Kensington what they are. For some years he actually held office in the Museum as acting keeper of the National Art Library, and until quite recently his expert opinion was continually sought by the authorities in purchases of woodwork and furniture. On this subject he was for long one of the leading authorities, and the handbooks that he wrote for the Museum were among the most popular of an always popular series. He also acted as examiner for the Department of Science and Art in historic ornament, and was frequently employed as a lecturer.

Masters and Men.

Wear Joiners' Wages. — The arbitrator appointed to consider the proposed reduction of wages of joiners employed in the Wear shipyards from 38s. 6d. to 37s. per week gave his award last week, to the effect that the wages are to be reduced by 1s. 6d. as from January 1st, 1903.

Wages in the Engineering Trade.—The secretaries of various trade unions have received a notification from the North-East Coast Engineering Employers' Association of a general reduction of wages in all the associated workshops, in consequence of severe depression of trade. The reductions proposed are 5 per cent. on piecework, 2s. a week on time rates over 30s., 1s. 6d. over 25s., and 1s. under 25s., to take effect from February 2nd.

Suggestions of Improvements asked for.—Messrs. Clark, Chapman & Co., engineers, Gateshead, have issued a circular to their employees inviting their suggestions with a view to developing industry in the use of machinery or appliances that would cheapen or improve the quality of the work. The suggestions are to be sent in writing at the beginning of each month, and their merits will be considered by a committee. The workmen will receive a pecuniary reward for suggestions that are adopted.

R.I.A.I.

SIR THOMAS DREW'S ADDRESS.

THE opening meeting of the session of the Royal Institute of Architects of Ireland was held on Thursday last at Dublin. The president, Sir Thomas Drew, delivered his inaugural address, in the course of which he said:—

The revision of our recognised form of building contract has now become a pressing question, chiefly in consequence of the communications addressed to us by the Irish Builders' Association, and of the favourable view taken of many of their proposals by the Royal Institute of British Architects and of other bodies representing the profession in England. The present recognised general conditions of contract have stood the test of experience for many years fairly well, and have been generally accepted by both parties to the contract. No desire for any radical change has been expressed on the part of the employers. From the nature of the case this could hardly have been expected so far, but as they will naturally look to us to safeguard their interests, it would seem proper to endeavour to ascertain their views by consulting public boards representing employers and by adopting any other means in our power before consenting to any radical change in the present recognised form of contract. There appear to be two such changes proposed—(*a*) the appointment of an independent arbitrator to adjudicate during the progress of the work on such questions as the meaning of the plans and specification, hitherto left to the sole decision of the architect; (*b*) the taking of the quantities part of the contract.

A most laudable desire has lately sprung up amongst our junior members and aspirants in the profession to improve the system of architectural education, with a view of obtaining a distinctive qualification by compulsory examination, as in other professions, and, I presume, of paving the way ultimately to the statutory registration of all practising architects. I am sure the senior members sympathise with this desire thoroughly, and would be most willing to aid the movement in any way in their power.

Mr. W. Kaye Parry read the annual report of the Council, which stated that the year, though comparatively uneventful, had been characterised by steady work. Particular reference was made in it to the proposed College of Science buildings at Dublin, and the remarks of Mr. Austen Chamberlain as to the architect for the work—already reported in these columns. The statement of accounts showed a balance in hand of £91.

The following were elected to constitute the Council for the ensuing year:—C. J. MacCarthy, Sir Thomas Drew, R. C. Orpen, W. M. Mitchell, J. Rawson Carroll, A. E. Murray, G. P. Sheridan, F. Batchelor and G. Geoghegan.

A resolution in favour of the registration of architects was proposed by Mr. Frederick Shaw and seconded by Mr. H. Allbery. Sir Thomas Drew said that he was one of those opposed to registration, and he would move as an amendment that no steps be at present taken in the matter. Mr. Murray seconded the amendment. Mr. J. Rawson Carroll suggested that the original motion be withdrawn. In his opinion, it should be the parent institution in London which should first move in this matter. After further discussion the motion was withdrawn, and the proceedings terminated.

The Dinner.

The annual dinner of the Institute was held in the evening in the Shelbourne Hotel. Mr. George C. Ashlin, president, occupied the chair, and nearly seventy guests were present.

Sir Thomas Drew in proposing the toast of "Our Guests" referred to the history of architecture in Ireland during the last century. He mentioned as elements which had militated against the advance of Irish architecture —the Act of Union, the long wars which had absorbed their attention early in the century, and the Irish famine. He pointed to the revival of architecture in 1850, and said that for the last half century architecture had come to the front, and their profession had become consolidated. Architects, he thought, should not confine themselves to bricks and mortar. The citizens of Dublin should combine, through the organization of their societies, in a grand conspiracy to keep the Treasury and Parliament in order.

Mr. Ryan, president of the Institute of Civil Engineers, said engineers might with advantage be associated with architects in more ways than one. Many engineering works would have benefited if architects had been consulted.

The president, in replying to the toast of the Institute, suggested that in the Royal Hibernian Academy there might be such a thing as an architectural as distinct from a sculptural school, which would attract architects, and contribute to the education of aspirants for the profession. He referred to the unsightliness of the dreadful foreground to the Custom House, near Beresford Place, and said, in the other direction, they had also the halfpenny bridge. That was a subject which the Corporation might take up.

Surveying & Sanitation.

Overcrowding in Barracks.—A coroner's jury recently had to consider at the Gravesend Barracks the death, from suffocation in bed, of a six-months-old child. Five persons had been compelled to live and sleep in one room and in one bed. The medical officer of the barracks had reported this and other cases of overcrowding to the commanding officer, but nothing had been done.

Sewerage of Carlisle.—At a meeting of the Sewage Disposal Committee of the Carlisle Town Council, last week it was decided to recommend the Council to adopt a scheme for treating the sewage of the city on the bacteriological system, according to a report prepared by Professor Dibdin and Mr. Markes, city surveyor, at an estimated cost of £60,000. The scheme provides for pumping apparatus sufficient to pump six times the normal dry weather flow as required by the Local Government Board.

Marlborough House Insanitary.—In the course of re-decorating and improving Marlborough House for the reception of the Prince and Princess of Wales it was found that the drainage system was in an extremely dangerous condition and will have to be completely renewed. The building may not be habitable before the end of next year. The defects appear to have been in existence for years. All the principal corridors and apartments of the residence are to be repapered and re-painted, and elaborate plans of designs in mouldings, plastering and colour effects will be carried out, the Princess' private suite, for instance, being entirely re-modelled.

Abbey Dore Church.—The old Cistercian Abbey Church at Dore, Hereford, has become seriously dilapidated, and is being renovated. The pavement has been relaid, some of the buttresses underpinned, the roofs of the presbytery and the tower repaired, and a complete system of drainage carried out. It is desired to repair the roof and ceiling of the transepts, which are in a dangerous condition, and other structural repairs are necessary to ensure the safety of the building.

Builders' Notes.

Mr. Robert Hughes, builder and contractor, of Liverpool and Egremont, died recently at the age of fifty-seven.

The Scarborough Master Builders' Association held its annual dinner last Saturday week. Mr. A. W. Sinclair presided. Mr. Oxley Smith proposed the "Architects and Surveyors," which was responded to by Mr. H. A. Chapman, A.R.I.B.A.

The Building Trade in Leicester, in common with other parts of the country, is by no means satisfactory at the present time. Very few contracts are coming out, and speculative work is said to be overdone. As a consequence there are a large number of unoccupied houses to be found in the town.

The Builders' Foremen's Association held a meeting on Saturday, November 29th, at the Memorial Hall, when Mr. Ebenezer Howard, author of "Garden Cities of To-morrow," delivered an interesting lecture on the general scheme of garden cities and the work of the Garden City Association. At the conclusion of the meeting the following resolution was unanimously adopted: "That the project of garden cities is practicable and goes far towards solving the housing problem."

The Grand Central Council of Fire Brigades has nominated the chairman of the Fire Prevention Committee (Mr. Edwin O. Sachs) as President of the International Technical Commission on Fire Protection in recognition of his services to the fire-brigade forces of the world. The Grand Central Council represents the leading Fire Brigades Associations of Europe, including the National Fire Brigades Union of England, as also of the United States, and some of the South American Republics, and was constituted on the occasion of the Paris Fire Congress of 1899. Its headquarters are Brussels, and its executive meets half-yearly.

Concrete Floors.—Messrs. W. B. Wilkinson & Co., Ltd., of London and Newcastle-on-Tyne, the pioneers of the trade of paviors in granite concrete, are just completing a floor measuring over 10,000 sq. yds. in one area for Messrs. Ransomes, Sims & Jefferies at Ipswich. This firm has carried out several very large paving contracts in recent years, such as Chatham Naval Barracks, over 15,000 yds.; Bulford Camp, Salisbury Plain, 22,000 yds.; L. & N.W.R. warehouses, Birmingham, 6,000 yds.; Messrs. Ransome & Co.'s new works at Newark, 5,000 yds.; Pulsometer Engineering Co.'s new works at Reading; the British Electric Transformer Co.'s new works at Hayes, &c., &c.

Protection of Brickfields.—The Manchester and District Master Brickmakers' Protection Society have been in communication with the Manchester city justices with reference to persons sleeping out and damaging brickworks. Their principal object, they state, is to impress upon the justices the desirability of adequate punishment being given to these men, who nightly come in bands, molest their watchmen, and generally take possession of their property. The members of the Society think that a more regular punishment ought to be inflicted than is now the case, some justices dismissing the prisoners or inflicting a nominal punishment, and others giving the prisoners as much as one month. The justices have consented to receive a deputation.

London County Council.—At last week's meeting of the Council Mr. Cousins took occasion—on a report from the Housing Committee recommending an expenditure of £51,986 for the erection of more dwellings on the Reid's Brewery estate, and also that

the work should be done by the Works Committee—to have another tilt at the Works Department. He said that blocks had already been put up on this site by contractors at £300 under the architect's estimate, whilst those put up by the Works Department on the same site had been taken at the architect's estimate. The Council had put contractors and the Works Department side by side on this work for comparison. He moved to refer the report back. After further discussion, however, the report was adopted by a large majority.—The Highways Committee brought up a big scheme for the electrification of another section of South London tramways, three miles in length, at a cost of £133,000. This was adopted.—The Parks Committee submitted their report with reference to the undertaking given by Sir J. Whittaker Ellis not to build upon his land on the Twickenham side of the river, so as to interfere with the amenities of the view from Richmond Hill.

Tenders.

Information from accredited sources should be sent to "The Editor" at latest by noon on Monday if intended for publication in the following Wednesday's issue. Results of Tenders cannot be accepted unless they contain the name of the Architect or Surveyor for the work.

Addressed postcards on which lists of tenders may be stated will be sent post free on application to the Manager, BUILDERS' JOURNAL, *Effingham House, Arundel Street, Strand, W.C.*

Brierley Hill (Staffs).—For the erection of a technical school and free library, for the Brierley Hill Urban District Council. Mr. J. Lewis Harper, architect:—

A. & S. T. Bishop, Brierley Hill	£5 363
W. Hopkins, Birmingham	5,300
Sapcote & Sons, Birmingham	5,267
Brooks & Tandy, Quarry Bank, near Brierley Hill	5,120
J. Herbert, Wolverhampton	5,014
Meredith, Cradley	4,978
F. L. Jones, Wolverhampton	4,965
Griffiths, The Lye, near Stourbridge	4 805
Dallow, Blackheath, West Bromwich	4,700
Guest & Sons, Brettell Lane, Stourbridge	4,650
Oakley & Coulson, Dudley	4,627
C. A. Norton,* Brierley Hill	4,457

* Accepted.

Bromsgrove.—For the erection of a new asylum near Bromsgrove, for the Worcestershire County Council. Mr. George T. Hine, F.R.I.B.A., architect, Westminster. Quantities by Mr. G. Kenwick, F.S.I., Birmingham:—

J. G. Fincher & Co., Stratford on-Avon	£201,450	8	4
F. E. Davey, Ltd., Southend on-Sea	198 502	0	0
J. Howe & Co., West Hartlepool	194,630	0	0
Kellett & Sons, Ltd., Northfield and London	191,702	1	8
McCormick & Sons, London	190,6,8	0	0
Stephens, Bastow & Co., Bristol	190,202	0	0
J. Guest & Son, Stourbridge	188,725	0	0
D. W. Davies, Cardiff	184,090	0	0
J. Parnell & Son, Rugby	183,286	0	0
W. Walkerdene, Derby	182,856	0	0
J. Tilt, Bromsgrove	179,999	0	0
W. Sapcote & Sons, Birmingham	179,666	0	0
H. Lovatt, Wolverhampton	178,949	0	0
J. Herbert, Wolverhampton	176,863	0	0
J. Dallow, Blackheath, Birmingham	176,360	0	0
Kerridge & Shaw, Cambridge	175,922	0	0
J. Barnsley & Sons, Birmingham	174,776	0	0
W. Lee & Son, Aston, Birmingham	173,659	0	0
T. Rowbotham, Birmingham	171,210	0	0
Gowing & Ingram, Birmingham	170,468	0	0
T. Lowe & Son, Burton-on-Trent	168,132	0	0
C. G. Hill, Coventry	167,100	0	0
W. Hopkins, Birmingham	167,000	0	0
W. Crane, Ltd., Nottingham	166,135	0	0
H. Willcock & Co., Wolverhampton	164,448	0	0
F. L. Jones, Wolverhampton	161,958	0	0
J. & A. Brazier, Bromsgrove	161,700	0	0
T. Johnson, Birmingham	161,220	0	0
F. Evans, Nottingham	156,576	0	0
Smith & Pitts, Birmingham	154,880	0	0
B. Whitehouse & Sons,* Birmingham	151,475	0	0

* Accepted.

Doncaster.—For supply and laying about 10,000yds of 3in., 4in., 5in., 6in., and 7in. cast-iron mains, with valves, hydrants, &c, and the construction of a service reservoir to hold 250 000gals., for the Doncaster Rural District Council. Mr. John Simmons, M.I.C.E., Bank Chambers, High Street, Doncaster, engineer:—

T. Rowland, Northwich	£5,791	6	4
Parkin & Co., Horsforth, Leeds	5,227	8	0
T. C. Starkey, Hull	5 138	3	11
Sprakes & Sons, Doncaster	4,995	0	0
S. Saunders, Birmingham	4,905	0	0
Bushby & Sons, Preston Leyburn	4,699	0	0
Vickers, Ltd., Nottingham	4,520	0	0
B. Roberts, 69 Beckett Road, Doncaster	4,434	9	7
W. Doleman, Dewsbury	4,323	14	7
G. Hall, Sheffield	4,149	0	0

* Accepted.

London.—For the erection of a home for female attendants at the Darenth Asylum, for the Metropolitan Asylums Board:—

Enness Brothers, Erith Road, Erith	£7,918
Goddard & Son, Farnham and Dorking	7,600
W. Reason, 47 Rosebery Avenue, E.C.	7,517
J. Lonsdale, Swanley Junction	7,444
S. Page & Son, Borough Hill, Croydon	7,420
J. J. Wise, jun., Queen Street, Deal	7,264
Cropley Brothers, Ltd., High Street, Epsom	7,149
H. Wall & Co., Carlton Works, Kentish Town, N.W.	7,123
J. & M. Patrick, Wandsworth, S.W.	7,115
R. L. Tonge, Jubilee Road, Watford	7,098
Scott & Branton, Greenhithe	6,955
J. & C. Bowyer, Weston Street, Upper Norwood	6,888
W. Lawrence & Son,* Waltham Cross, N.	6,854

* Accepted. [Architect's revised estimate, £7,563.]

London.—For works at the Brecknock School, for the London School Board:—

J. Simpson & Son	£4,797	0	0
C. Dearing & Son	4,573	2	3
W. M. Dabbs	4,462	0	0
J. Grover & Son	4,392	0	0
J. Willmott & Sons	4,388	0	0
Marchant & Hirst	4,338	0	0
T. L. Green	4,289	0	0
G. S. S. Williams & Son	4,285	0	0
Patman & Fotheringham, Ltd.	4,267	0	0
F. Gough & Co.	4,223	0	0
McCormick & Sons	4,178	0	0
H. Wall & Co.	4,177	0	0
C. Cox	4,140	0	0
Treasure & Son	4,018	0	0
E. Lawrence & Sons*	3,949	0	0

* Recommended for acceptance.

London, N.—For laying new fire mains at the Cornwallis Road Workhouse, Holloway, for the Guardians of St. Mary, Islington. William Smith, A.R.I.B.A., architect, 65 Chancery Lane, E.C.:—

Moorwood & Sons	£475	5	
Shand, Mason	458	3	
May	410	0	
Merryweather & Sons	402	2	
Harris	389	0	
Harding & Son	365	6	

[Architect's estimate, £720, including architect's commission digging, cutting away, filling in, and making good which is not included in above estimate.]

Reigate (Surrey).—For the erection of a residence on Wray Lane, Reigate Hill, for Mr. F. Vigers. Mr. A. Waring Venner, architect, Redhill:—

C. Parsons	£2,850	A. B. Wiles	£2,580
J. Waycott	2,755	A. B. Apted	2,544
Buckman & Lewis	2,712	W. Wickman	2,495
Bushby & Sons	2,709	E. Worssell*	2,486

* Amended and accepted.

Roydon (Essex).—For the erection of a house and lodge at Roydon, for Mr. C. A. Christie, of Hoddesdon, Herts. Messrs. Newman & Newman, architects, 31 Tooley Street, London Bridge. Quantities by Messrs. Selby & Saunders, of 39 Victoria Street, Westminster, S.W.:—

	House.	Lodge, &c.
Bex	£4,630	£6 0
Sharpington	4,660	730
Lawrence & Son	4,494	694
Hitch	4,481	632
Holloway Brothers	4,366	673
Webster & Cannon	4,328	748
Horrocks	4,275	670
Goddard & Sons	4,196	696
Bentley	4,178	668
J. Hunt,* Hoddesdon	3,958	638

* Accepted.

Risca (Mon).—For the erection of a new mixed school at Danygraig, Risca, Mon, for the Risca School Board. Mr. Ernest N. Johnson, architect, Risca:—

Davies Brothers, Abercarn	£4,207 19
J. Charles, Crindau, Newport	4,158 10
J. Pritchard,* Pontymister	3,905 10

* Accepted.

Skegness (Lincs).—For the erection of a factory manager's house, &c., at Skegness, for Messrs. Lee & Green, Ltd. Mr. Jesse Clare, architect, Sleaford:—

Parker, Spalding	£1,667 0
Parker & Son, Wainfleet	1,325 0
Crawshaw, Skegness	1,280 0
Dunkerley & Son, Skegness	1,275 0
Maxey & Sons, Sleaford	1,265 0
Clay & Berry, Sleaford	1,250 0
Turner, Wainfleet	1,238 0
Holmes & Son, Skegness	1,180 10
S. F. Pattinson, Ruskington	1,175 0
Parker & Son,* Boston	1,149 10

* Accepted.

Southminster (Essex).—For rebuilding the "White Horse" hotel. Mr. Richard Mawhood, architect, Chelmsford:—

Smith & Son	£1,445
J. Rayner	1,335
H. Bishop,* Southminster	1,198

* Accepted.

Southampton. For the extension of car-sheds and other buildings at the Portswood tramway depot, for the Corporation. Mr. J. A. Crowther, borough engineer:—

J. Nicol	£3,295
Coston & Co., Ltd.	3,263
F. Osman	3,100
H. Stevens & Co.	2,984
Jenkins & Sons, Ltd.	2,983
Dyer & Sons*	2,775

* Accepted. [All of Southampton.]

Swansea.—For the erection of the Hafod school, Swansea, for the Swansea (U.D.) School Board:—

	Extra for Polled Stone.
D. W. Davies	£25,035 £1,172 0
A. S. Morgan	24,390 1,145 0
Griff. Davies	23,800 912 0
Walters & John	23,498 1,094 0
J. & D. Jones	23,211 900 0
Thomas Richards	22,187 1,043 0
John Williams	22,055 1,000 0
D. Jenkins	21,595 831 0
Henry Billing	21,409 822 0
Lloyd Brothers	21,477 791 0
Bennett Brothers	21,185 820 0
J. & F. Weaver*	20,560 762 17

* Accepted.

Watchet (Somerset).—For the reconstruction of Watchet Harbour, for the Urban District Council. Mr. W. T. Douglas, consulting engineer, 15 Victoria Street, Westminster:—

S Saunders, Dudley	£41,500	0	0
H. W. Pollard, Bridgwater	26,900	0	0
R. H. Neal, Plymouth	23,628	0	0
J. & M. Patrick, Wandsworth	22,990	0	0
S. Wood, Bristol	21,991	0	0
A. Fasey & Son, Leytonstone	21,356	6	9
J. & T. Binns, Croydon	21,298	17	0
J. Dickson, St. Albans	18,755	14	1
G. Rutter, Barry	18,750	18	0
E. H. Page, Cardiff	18,135	6	4
E. R. Lester, Plymouth	16,970	0	0
C. H. Walker & Co.,* Westminster	16,183	3	5
B. Cooke & Co., Westminster	15,619	12	9

* Accepted. [Engineer's estimate, £16,500.]

Watford (Herts).—For pulling down and rebuilding premises, 161 and 163 High Street, and 4 Water Lane, Watford, for Messrs. Rodwell & Co. Mr. C. P. Ayres, architect, Watford. Quantities by the architect:—

J. & J. Waterman	£2,133	0	0
Tyler & White	2,000	0	0
C. Eames	1,990	0	0
Clifford & Gough	1,989	0	0
Clark Brothers	1,981	0	0
Webster & Cannon	1,975	0	0
C. Brightman	1,948	0	0
Watkins	1,947	0	0
Judge	1,928	0	0
Wiggs	1,923	0	0
H. Brown	1,875	0	0
Swain	1,834	15	10
F. Dupont & Co.*	1,768	0	0

* Accepted.

Wealdstone (Middlesex).—For the erection of the necessary works in connection with the forming, making-up, and providing proper mains for lighting Hinde's Road, also for supply of granite, for the Wealdstone Urban District Council. Mr. F. Hill-Parr, C.E., surveyor:—

Lawrence & Thacker	£2,200	10	10
G. Wilson, Walthamstow	2,070	0	0
T. Free & Sons, Maidenhead	2,059	8	5
H. Brown, Watford	1,949	0	0
T. Adams, Wood Green	1,910	15	9
H. M. Hollingsworth,* Wealdstone	1,880	1	5

Cliffe Hill Granite Co., 1¾in. granite, 10s. 9d. per ton ¾in. chippings, 7s. 9d.

* Accepted. [Surveyor's estimate, £2,031.]

West Ham.—For making-up the following streets, for the West Ham Town Council: Glasgow Road, Tweedmouth Road, Stirling Road, Dundee Road, Edinburgh Road, Southern Road (part of). Mr. John G. Morley, borough engineer:—

P. W. Symmons, London, E.C	£4,998	4	4
J. Jackson, Plaistow	3,561	5	10
T. Adams, Wood Green	3,538	16	8
Lawrence & Thacker, Clapham	3,474	14	2
W. Griffiths & Co., London, E.C.	3,442	13	5
D. T. Jackson, Barking	3,325	11	2
W. Manders, Leyton	2,947	14	3
G. J. Anderson, Poplar	2,773	19	9
Parsons & Parsons,* Ilford Wharf, Ilford	2,610	2	1

* Accepted.

Worthing (Sussex).—For the erection of a house at Bath Road, Heene, Worthing. Messrs. Singer, Hyde & Son, M.S.A., architects:—

	House.	Boundary Wall.
Colls & Sons London	£3,668	£230
Patching & Co, Worthing	3,520	175
Potter Brother, Horsham	3,493	240
Field & Co, Brighton	3,483	206
Longley & Co.,* Crawley	3,422	235
Patching & Son, Brighton	3,395	190
Walter Wallis, Littlehampton	3,101	193
H. G. Savage, Worthing	2,918	189

* Accepted.

Woodford.—For the erection of Ray Lodge and Woodford Bridge Schools, Snakes' Lane. Edward Tidman, architect, 34 Victoria Street, S.W. Quantities by J. S. Lee & Sons, 33 Craven Street, W.C.:—

Townsend & Coles, Sloane Street, S.W.	£26,000
Oak Building Co., Cambridge	20,296
W. H. T. Kelland, Stoke Newington	19,900
Stevens, Bastow & Co., Bristol	19,498
J. Appleby & Son, Stamford Street, S.E.	19,200
G. Sharp, Stratford	19 012
Sands, Palmer & Co., Walthamstow	19,000
McKay & Co., Clacton-on-Sea	18,910
A. W. Robins, Wanstead	18,830
A. E. Symes, Stratford	18,798
F. Willmott, Ilford	18,745
Barrett & Power, Hackney	18,500
R. L. Tonge, Watford	17,997
Ernest West, Chelmsford	17,973
P. Banyard, Cambridge	17,845
H. J. Carter, Grays	17,682
T. Almond & Son, Ponders' End	17,577
T. Coxhead, Leytonstone	17,440
Myall & Upson, Clackton-on-Sea	16,456
H. Wells & Sons,* Buckhurst Hill	16,350

* Modified to £16,345 and accepted.

Complete List of Contracts Open.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDERS MAY BE OBTAINED.
	BUILDING:		
Dec. 11	Ilkley—House		W. H H. Marten, Architect, Cheapside Chambers, Bradford.
„ 11	London, S.W.—Victoria and Albert Museum Superstructure	Commisssioners of H.M. Works	H.M. Office of Works, Storey's Gate, Westminster, S.W.
„ 11	Preston—Hospital	Hospital Committee	J. A. Seward & W. Rawcliffe. 119A Fisher gate, Preston.
„ 11	Cardiff—Accident Wards at Infirmary		E. Seward, Architect, Queen's Chambers, Cardiff.
„ 11	Lindley, near Huddersfield—Villas		J Kirk & Sons, Architects, Huddersfield
„ 11	Wyke, Bradford—Three Houses		Fairbank & Wall, Architects, Craven Bank Chambers, Bradford.
„ 11	Nottingham—Blue Lias Lime, Cement, Bricks, &c.	Works and Ways Committee	A. Brown, City Engineer, Nottingham.
„ 11	Eccleshill—Mill		W. Bailey, 9 Market Street, Bradford.
„ 12	Ashford, Kent—Painting and Repairs	Urban District Council	W. Terrill, Surveyor, North Street, Ashford.
„ 12	Norwich—Converting Premises	Watch Committee	A. E. Collins, City Engineer, Guildhall, Norwich.
„ 13	Accrington—Parish Room		H. Ross, 15, Cannon Street, Accrington.
„ 13	Bury, Lancs—Gasworks Extensions	Gas Committee	H. Simmonds, General Manager, Gasworks, Elton.
„ 13	Sligo—Depôt	Union Guardians	P. J. Kilgallen, Architect, Abbeyville, Sligo.
„ 13	East Ham—Bandstand, &c.	Urban District Council	A. H. Campbell, Engineer, Public Offices, Wakefield St., East Ham.
„ 13	Bradford—Baths, &c.	Corporation	City Architect, Chapel Lane, Bradford.
„ 15	Darlington—Bandstand		W. G. Winter, Borough Surveyor, Town Hall, Darlington.
„ 15	Dudley—Additions to Technical Schools	Corporation	J. Gammage, Borough Surveyor, Town Hall, Dudley.
„ 15	Bexhill, Sussex—Extension of Electric Light Works	Town Council	G. Ball, Borough Surveyor, Town Hall, Bexhill.
„ 15	London, S.W.—Shop, &c.	Wandsworth Borough Council	Surveyor, 4 High Street, Wandsworth.
„ 15	Halifax—Shops, &c.	A. Scott, Ltd.	W. C. Williams, 29 Southgate, Halifax.
„ 15	Doughton—Premises		J. A. Jones, 7 Queen's Terrace, Aberystwyth.
„ 16	Reigate—Alterations to Infirmary	Union Guardians	Baker & Penfold, Architects, High Street, Reigate.
„ 16	Harrogate—Villa	J. H. Brown	H. E. Illingworth, 8 East Parade, Leeds.
„ 16	Ystradgynlais, Wales—School	School Board	P. Williams, Architect, Ty'r Gorof, Ystradgynlais.
„ 17	Swansea—School	School Board	A. W. Halden, Clerk, Dynevor Place, Swansea.
„ 17	Longwood, near Huddersfield—Church		J. Berry, 3 Market Place, Huddersfield.
„ 17	Maldon, Essex—Hospital Blocks	Joint Hospital Board	P. M Beaumont, Architect, Maldon
„ 17	Newport, Mon—Additions to Brewery	Phillips & Sons, Ltd.	F. Phillips, Dock Road Chambers, Newport.
„ 17	Southampton—Enclosing Arches	Guardians	D. P. Gwillim, Clerk, Workhouse, Southampton.
„ 18	Halifax—Nineteen Houses		M. Hall, 29 Northgate, Halifax.
„ 18	Aberystwyth—Business Premises and Stables	D. Roberts & Sons	T. E. Morgan, Architect, Aberystwyth.
„ 18	London, W—School and Manual Centre	Acton School Board	E. Monson & Sons, Architects, Grosvenor House, Acton Vale, W.
„ 19	Hull—Alterations, &c., to Sanatorium	Corporation	J. H. Hirst, City Architect, Town Hall, Hull.
„ 20	Gloucester—Alterations, &c., to School	School Board	W. B. Wood, 12 Queen Street, Gloucester.
„ 23	Limerick—Post Office		District Office of Public Works, Limerick.
„ 27	Wigan—Twenty-five Cottages	Corporation	Borough Engineer, Municipal Buildings, Wigan.
„ 31	Water Fulford, near York—Asylum		A. Creer, Architect, Guildhall, York.
Jan. 5	Trowbridge, Wilts—Hospital	Isolation Hospital Committee	J. H. Goodman, Architect, Town Hall Chambers, Reading.
„ 5	Aber, near Caerphilly, Wales—Ninety-five Cottages	Windsor Building Club	E. Thomas, 19 Eirw Road, Porth.
	ENGINEERING:		
Dec. 11	Dewsbury—Dynamos	Corporation	R. H. Champion, Borough Elec. Engnr., Town Hall, Dewsbury.
„ 11	London—Wiring, &c.	London County Council	Chief Engineer, County Hall, Spring Gardens, S.W.
„ 11	London, S.W.—Wheels, &c.	London County Council	Clerk to Council, County Hall, Spring Gardens, S.W.
„ 12	Silecroft, Cumberland—Extensions of Water-Mains	Bootle Rural District Council	J. Clark, Clerk, Broughton-in-Furness
„ 12	Crondall, Hants—Sinking Well, &c.	Frimley & Farnborough Water Co.	R. Nunn, 17 Victoria Street, Westminster.
„ 13	Manchester—Tramways	Trafford Park Estates, Ltd.	Lacey, Clirehugh & Sillar, 2 Queen Anne's Gate, Westminster.
„ 13	Madrid—Canal Reservoir		Office of Ministry of Agriculture, Commerce & Public Wks. Madrid
„ 15	Monte Video, Uruguay—Sanitary Works	Uruguayan Government	Consulate-General of Uruguay, Edinburgh Mansions, Howick Place, Victoria Street, S.W.
„ 15	Pontypridd—Gasholder Lift	Urban District Council	E. Jones, Engineer, Treforest.
„ 15	Lowestoft—Groynes	Town Council	W. T. Douglass, 15 Victoria Street, Westminster, S.W.
„ 15	Manchester—Float Valves	Waterworks Committee	G. H. Hill & Sons, 3 Victoria Street, Westminster.
„ 15	Salford—Electric Tramcars	Tramways Committee	E. Hatton, 32 Blackfriars Street, Salford.
„ 16	Nelson, Lancs—Mineral Yard and Bridge	Lancs & Yorks Rly. Co.	Engineer, Hunt's Bank, Manchester.
„ 17	Cashel, Ireland—Railway	Gt. Southern & Western Rly. Co.	F. B. Ormsby, Secretary, Kingsbridge Station, Dublin.
„ 18	Egremont, Cheshire—Gasworks Extension	Wallasey U.D.C.	J. H. Crowther, Engineer, Great Float, near Birkenhead.
„ 18	Swansea—Half-Tide Extension	Harbour Trustees	A. O. Schenk, Trustees Engineer, Harbour Offices, Swansea.
„ 20	Roe Sound, Zetland—Bridge	County Council	E. K. Carmichael, 8 North Bank Street, Edinburgh.
„ 20	Sidmouth—Electric Lighting	Urban District Council	J. A. Orchard, Clerk, Council Offices, Sidmouth.
„ 20	Alexandria, Egypt—Steamer		Inspector of Irrigation, Third Circle, Alexandria.
„ 22	Clacton-on-Sea—Electrical Plant	Urban District Council	W. H. Trentham, 39 Victoria Street, Westminster, S.W.
„ 22	Perth, Western Australia—Rubbish Destructor	City Council	Agent-General for Western Australia, 15 Victoria St., Westminster.
„ 22	St. Helens, Lancs—Precipitation Tanks, &c.	Health Committee	G. J. C. Broom, Borough Engineer, Town Hall, St. Helens.
„ 23	Brighton—Tramroads, &c.	Town Council	F. J. C. May, Borough Engineer, Town Hall, Brighton.
„ 27	Cairo—Bridge		Inspector of Irrigation, 1st Circle, Cairo.
„ 29	Cleethorpes, Lincs—Sea Wall, &c.	Urban District Council	E. Rushton, Engineer, Poplar Road, Cleethorpes.
„ 31	Dorking—Sewerage Works	Rural District Council	W. Rapley, Jun., Surveyor, Clovelly, Tower Hill, Dorking.
Jan. 6	Teignmouth—Gasworks Extensions, &c.	Urban District Council	J. A. Gray, Gas Engineer, Teignmouth.
Feb. 26	Bulawayo, Rhodesia—Electric Tramway	Municipal Council	Davis & Soper, 54 St. Mary Axe, E.C.
	FURNITURE:		
Dec. 13	Cannock, Staffs—Furniture, &c.	Workhouse Guardians	A. W. Carver, Clerk, Union Offices, Cannock.
„ 15	Barow-in-Furness—Curtains and Blinds		Borough Engineer Town Hall, Barrow-in-Furness.
„ 17	London, S.E.—Furniture, &c., for Infirmary	St. Giles's Guardians, Camberwell	C. S. Stevens, Clerk, 29 Peckham Road, S E.
	IRON AND STEEL:		
Dec. 11	Nottingham—Stores and Materials	Works and Ways Committee	A. Brown, City Engineer, Nottingham.
„ 12	Middlesborough Stores and Materials	Tees Conservancy Commissioners	J. H. Amos, Secretary, Board Room, Middlesbrough.
„ 12	Hull—Iron and Steel, Castings, &c.	Works Committee	A. E. White, City Engineer, Town Hall, Hull.
„ 15	Lancaster—Cast-iron Pipes, &c.	Water Company	J. C. Mount, Water Engineer, Town Hall, Lancaster.
„ 16	Birkenhead—Stores	Tramways Committee	A. R. Fearnley, Tramways Manager, Sessions House, Birkenhead.
„ 16	London, N.—Water Pipes	Tottenham U.D.C.	W. H. Prescott, 712 High Road, Tottenham.
„ 17	Amsterdam—Railway Stores	Netherlands Minister of Colonies	Mart. Nyhoff, the Hague.
Jan. 15	Ottawa—Rails		L. K. Jones, Secretary, Department of Railways, Canals, Ottawa.
Feb. 6	Cape Town—Locks		Agent-General for Cape Colony, 100 Victoria Street, S.W.
	PAINTING AND PLUMBING:		
Dec. 12	Preston, Lancs—Painting	Corporation	Borough Engineer, Town Hall, Preston.
„ 12	Middlesbrough—Oils, Paint, &c.	Tees Conservancy Commissonrs.	Engineers to Commissioners, Middlesbrough.
„ 12	Hull—Tar and Pitch, Paints and Oils, Brushes	Corporation	A. E. White, City Engineer, Town Hall, Hull.
„ 13	London, S.E.—Painters' Materials, &c.		Superintendent, Guy's Hospital, S.E.
„ 13	London—Painting, &c.	Metropolitan Asylums Board	Secretary, Board's Offices, Embankment, E.C.
„ 15	Barnsley—Painting	Barber's Almshouse Charity	J. Smith, Coal Proprietor, Quarry Street, Gawber.
„ 15	London, S.E.—Painting	Bermondsey Borough Council	R. J. Angel, Borough Surveyor, Town Hall, Spa Road, S.E.
„ 16	Newport, Mon.—Lavatory Fittings	School Board	Linton & Barker, Architects, Westgate Chambers, Newport, Mon.
	ROADS AND CARTAGE:		
Dec. 11	Northampton—Materials	Highway Committee	A. Fidler, Borough Engineer, Guildhall, Northampton.
„ 11	Newsham, Northumberland—Paving	Cowper U.D.C.	R. Grieves, Surveyor, Waterloo, Blyth.
„ 11	Stockport—Street Works	Highways & Sewers Committee	J. Atkinson Borough Surveyor, St. Petersgate, Stockport
„ 11	Nottingham—Granite, Setts, Kerbs, Slag, &c.	Works and Ways Committee	A. Brown, City Engineer, Nottingham.
„ 12	Hull—Cartage, Cement, Pitch, &c.	Works Committee	A. E. White, City Engineer, Town Hall, Hull.
„ 12	Preston, Lancs—Levelling, Paving, &c.	Corporation	Borough Surveyor, Town Hall, Preston.
„ 13	London, S.E.—Sand, Ballast, Cartage, &c.		Superintendent, Guy's Hospital.
„ 13	Newcastle-on-Tyne—Stone	Northumberland C.C.	County Surveyor, Moot Hall, Newcastle-on-Tyne.
„ 15	London, W.—Making-up and Paving Roads	Paddington Borough Council	E. B. Newton, Borough Surveyor, Town Hall, Paddington, W.
„ 16	Cheriton, Kent—Roadmaking	Urban District Council	Surveyor, Public Offices, Cheriton.
„ 16	Bromley, Kent—Road Works	Urban District Council	F. H. Norman, Clerk, Council Offices, Bromley, Kent.

Complete List of Contracts Open —*continued.*

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDERS MAY BE OBTAINED.
	ROADS AND CARTAGE—*continued.*		
Dec. 16	London, N.—Making-up Roads	Tottenham U.D.C.	W. H Prescott, 712 High Road, Tottenham.
,, 16	Birkenhead—Sand, &c.	Tramways Committee	A. R. Fearnley, Tramways Manager, Sessions House, Birkenhead.
,, 17	Eccles, Lancs—Road Works	Corporation	T. S. Picton, Borough Surveyor, Town Hall, Eccles.
,, 18	London, W.—Making-up Roads	Ealing Town Council	C. Jones, Borough Engineer, Town Hall, Ealing, W.
,, 18	Trowbridge—Steam Rolling and Scarifying	Urban District Council	H. G. Nicholson-Lailey, Town Surveyor, Town Hall, Trowbridge.
,, 19	Frinton-on-Sea, Essex—Levelling, &c.	Urban District Council	P. O. Macdonald, 1 Old Road, Frinton-on-Sea.
,, 22	London, S.E.—Street Works	Penge U.D.C.	H W. Longdin, Surveyor, Town Hall, Anerley.
Jan. 27	Capetown—Streets		Davis & Soper, 54 St. Mary Axe, E.C.
	SANITARY:		
Dec. 11	Nottingham—Pipes, Scavenging, &c.	Works and Ways Committee	A. Brown, City Engineer, Nottingham.
,, 11	Castleford, Yorks—Sewer	Urban District Council	W. Green, Surveyor, Carleton Street, Castleford.
,, 11	New Brompton, Kent—Drain Pipes	Gillingham U.D.C.	F. C. Boucher, Clerk, Council Offices, New Brompton.
,, 12	Hull—Scavenging, Pipes, &c.	Works Committee	A E. White, City Engineer, Town Hall, Hull.
,, 15	Monte Video—Sanitary Works	Government of Uruguay	Uruguay Legation, London.
,, 17	Cannock, Staffs—Drainage Works	Guardians	Willcox & Raikes, 63 Temple Row, Birmingham.
,, 17	Pinxton, near Alfreton—Sewerage Works	Blackwell R.D.C.	H. Walker, Engineer, Albion Chambers, King Street, Nottingham.
,, 17	Scarborough—Sewer, &c.	Town Council	H. W. Smith, Surveyor, Town Hall, Castle Road, Scarborough.
,, 18	Leicester—Sewers, &c.	Highways & Sewerage Comm.	E. G. Mawbey, Borough Engineer, Town Hall, Leicester.
Jan. 5	Watlington, near Henley-on-Thames—Sewers	Henley R.D.C.	J. Taylor, Sons and S. Crimp, 27 Great George Street, Westminster.
	TIMBER:		
Dec. 11	Nottingham—Timber	Works and Ways Committee	A. Brown, City Engineer, Nottingham.
,, 12	Middlesbrough—Timber	Tees Conservancy Committee	Engineer of Commissioners, Middlesbrough.
,, 16	Birkenhead—Stores	Tramways Committee	A. R. Fearnley, Tramways Manager, Sessions House, Birkenhead.

List of Competitions Open.

DATE OF DELIVERY.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Dec. 12	Eccles—Laying-out Area for Workmen's Dwellings	£50, £30, £15.	W. H Hickson, Town Clerk, Town Hall, Eccles.
,, 16	Surbiton—Clock Tower	£10 10s.	Dr. Coleman, District Council Offices, Surbiton.
,, 18	Durban, Natal—Town Hall, Library, Museum, &c.	£500, £300, £200.	W. H. Radford, Albion Chambers, King Street, Nottingham.
,, 31	Ashton-in-Makerfield—Infectious Diseases Hospital	Urban District Council	T. Burgess, Surveyor, Council Offices, Ashton-in-Makerfield.
Jan. 15	Kingston-on-Thames—Cottage Homes for Children	£25, £15, £10.	J. Edgell, Clerk to Guardians, Coombe Lane, Kingston-on-Thames.
,, 20	Workington—Public Library	£25, £15, £10.	W. L. Eaglesfield, Borough Surveyor, Workington.
,, 31	Cape Town—University Buildings	£400, £200, £100.	Agent-General for the Cape of Good Hope, London.
,, 31	Hull—Town Hall Extension	£300, £200, £100.	E. Laverack, Town Clerk, Town Hall, Hull.
Feb. 13	Patras, Greece—Church	£400, £160, £80.	Committee for new Church of St. Andrew, Patras, Greece.
,, 28	Bridgwater—Appliances for Silt Disposal		W. T. Baker, Town Clerk, King Square, Bridgwater.
No date.	Motherwell, Scotland—Poorhouse	£25, £20, £15.	J. Miller, Inspector of Poor, Parish Council Office, Motherwell.



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Coming Events.

Wednesday, Dec. 10.

ARCHITECTURAL ASSOCIATION (Discussion Section).—Mr. J. S. Blunt on "Crosses, Pagan and Christian," 7.30 p.m.

JAPAN SOCIETY.—Mr. John H. Dixon on "Some Japanese Artists of To-day," 8 p.m.

INSTITUTION OF JUNIOR ENGINEERS.—Visit to Messrs. Elliott Brothers' Mathematical, Electrical, and Optical Works, Conington Road, Lewisham, 3 p.m.

INSTITUTION OF SANITARY ENGINEERS.—Half-Yearly General Meeting at 5 p.m. Annual Dinner at the Holborn Restaurant at 6 30 p.m.

ST. PAUL'S ECCLESIOLOGICAL SOCIETY.—Rev. Reginald J. Fletcher, on "The Inns of Court and the Reformation," 8 p.m.

SANITARY INSTITUTE.—Discussion on "Drain Testing," to be opened by Messrs. Louis C. Parkes, M.D., J. Osborne Smith, F.R.I.B.A., and W. C. Tyndale, M.I.C.E.

RUSKIN SOCIETY OF BIRMINGHAM.—Rev. A. Jamson Smith, M.A., on "Verona," 7.45 p.m.

NORTHERN ARCHITECTURAL ASSOCIATION.—Mr. R. G. Hatton on "The Ideas of the Advocates of Handicrafts; their effect on Architectural Form and Ornamentation," 7.30 p.m.

INSTITUTION OF CIVIL ENGINEERS.—Students' visit to inspect the widening operations in progress at London Bridge at 2.30 p.m.

EDINBURGH ARCHITECTURAL ASSOCIATION (Associates' Section).—Mr. James Greeve on "Notes on Building Construction," 8 p.m.

Thursday, Dec. 11.

MANCHESTER SOCIETY OF ARCHITECTS.—Mr. P. S. Worthington, M.A., on "Homes of the Monks during the Middle Ages."

SOCIETY OF ARTS (Indian Section).—Miss Ella C. Sykes on "Domestic Life in Persia," 4.30 p.m.

INSTITUTION OF ELECTRICAL ENGINEERS.—Dr. J. A. Fleming, F.R.S., on "The Photometry of Electric Lamps," 8 p.m.

SOCIETY OF ARCHITECTS.—Mr. Ellias Marsland on "Some Recent Conflagrations and their Lessons to Architects," 8 p.m.

GUILDHALL LIBRARY.—Mr. Charles Welch on "The Guildhall Library and Museum, their History and Treasures," 6.30 p.m.

Friday, Dec. 12.

GLASGOW AND WEST OF SCOTLAND TECHNICAL COLLEGE ARCHITECTURAL CRAFTSMEN'S SOCIETY.—Mr. Alexander W. R. Bell on "Roof Tiling." Meeting at 204, George Street, Glasgow.

INSTITUTION OF JUNIOR ENGINEERS.—Mr. A. T. Swaine on "A New Automatic Railway Coupling, compared with the existing System on British Railways," 8 p.m.

Saturday, Dec. 13.

GLASGOW AND WEST OF SCOTLAND SCIENTIFIC SOCIETY.—Mr. John H. Davey on "The Advancement of Machine Tools," 7.30 p.m.

NORTH OF ENGLAND INSTITUTE OF MINING AND MECHANICAL ENGINEERS (Newcastle-on-Tyne).—Messrs. A. H. Meysey-Thompson and H. Lupton on "Some of the Considerations affecting the Choice of Pumping Machinery." Dr. Edward Dyer Peters on "Treatment of Low-Grade Copper Ores." Professor Auguste Rateau on "The Utilisation of Exhaust Steam by the Combined Application of Steam Accumulators and Turbine Condensers." Mr. Mark Ford on "Sinking by the Freezing Method at Washington Colliery, co. Durham," 2 p.m.

Monday, Dec. 15.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.—Mr Arthur Evans on "The Palace of Knossos, Crete," 8 p.m.

ROYAL PHILOSOPHICAL SOCIETY OF GLASGOW.—Mr. E. C. Morgan on "The Construction of Spires, with Special Reference to that of St. Mary's Cathedral, Edinburgh," 8 p.m.

LIVERPOOL ARCHITECTURAL SOCIETY.—Mr. David Beverage on "Sir John Vanbrugh and his Work."

SOCIETY OF ARTS (Cantor Lecture).—Prof. Vivian B. Lewes on "The Future of Coal Gas and Allied Illuminants"—IV., 8 p.m.

ROYAL GEOGRAPHICAL SOCIETY.—Dr. Karl Lumholtz on "Twelve Years' Exploration and Research in Mexico," 8 30 p.m.

SURVEYORS' INSTITUTION (Junior Meeting).—Mr. G. P. Knowles on "The Model By-laws of the Local Government Board in relation to Rural Sanitation," 7 p.m.

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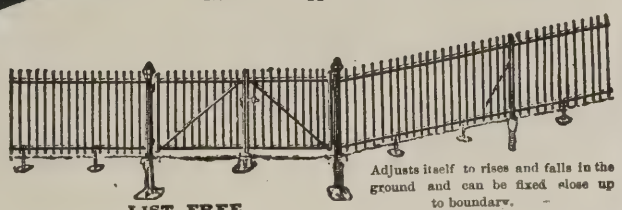
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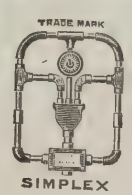
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COMING EVENTS—*cont.*

Tuesday, Dec. 16.

GLASGOW ARCHITECTURAL ASSOCIATION.—Mr James M'Kissack on "Architectural Photography," 8 p m.

Wednesday, Dec. 17.

ARCHITECTURAL ASSOCIATION.—Discussion Section and Camera and Cycling Club joint meeting, at 7.30 p.m.

SOCIETY OF ARTS.—Mr. Archibald P. Head, M.I C.E, on "The South Russian Iron Industry," 8 p m.

CHEMICAL SOCIETY.—Meeting at 5 30 p.m.

INSTITUTION OF ELECTRICAL ENGINEERS.—Dinner at Hotel Cecil at 7.30 p.m.

Thursday, Dec. 18.

LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY (Craft Evening).—Mr. E. C. Spence on "Modelling," and Mr. Andrew Willetts on "Door Furniture," 6.30 p.m.

Current Market Prices.

FORAGE.

		£ s. d.	£ s. d.
Beans	per qr.	1 15 0	2 0 0
Clover, best	per load	4 10 0	5 5 0
Hay, best	do.	4 15 0	5 10 0
Sainfoin mixture ..	do.	4 5 0	5 0 0
Straw	do.	1 8 0	1 18 0

OILS AND PAINTS.

Castor Oil, French ..	per cwt.	1 3 11	—
Colza Oil, English ..	do.	1 4 9	—
Copperas	per ton	2 0 0	—
Lard Oil	per cwt.	2 13 0	2 14 0
Lead, white, ground, carbonate	do.	1 4 10	—
Do. red	do.	1 0 4½	
Linseed Oil, barrels ..	do.	1 3 6	—
Petroleum, American ..	per gal.	0 0 5⅝	0 0 5⅞
Do. Russian ..	do.	0 0 4½	0 0 4⅝
Pitch	per barrel	0 7 0	—
Shellac, orange	per cwt.	6 6 0	—
Soda, crystals	per ton	3 2 6	3 5 0
Tallow, Home Melt ..	per cwt.	1 12 0	1 12 6
Tar, Stockholm	per barrel	1 1 6	—
Turpentine	per cwt.	1 18 4½	—

METALS.

Copper, sheet, strong ..	per ton	65 0 0	—
Iron, Staffs., bar	do.	6 10 0	8 10 0
Do. Galvanised Corrugated sheet ..	do.	11 10 0	11 12 6
Lead, pig, Soft Foreign ..	do.	10 12 6	10 13 9
Do. do. English common brands	do.	10 18 9	—
Do. sheet, English 3lb. per sq. ft. and upwards	do.	13 10 0	—
Do. pipe	do.	14 0 0	—
Nails, cut clasp, 3in. to 6in.	per ton	9 5 0	—
Do. floor brads	do.	9 0 0	—
Steel, Staffs., Girders and Angles	do.	5 15 0	6 5 0
Do. do. Mild bars ..	do.	6 10 0	7 0 0
Tin, Foreign	do.	113 17 6	114 7 6
Do. English ingots ..	do.	114 0 0	116 0 0
Zinc, sheets, Silesian ..	do.	24 0 0	—
Do. do. Vieille Montaigne	do.	24 0 0	—
Do. Spelter	do.	19 15 0	20 0 0

TIMBER.

SOFT WOODS.

Fir, Dantzic and Memel	per load	1 13 0	3 0 0
Pine, Quebec, Yellow ..	per load	5 5 0	6 5 0
Do. Pitch	do.	3 0 0	3 4 0
Laths, log, Dantzic ..	per fath.	4 10 0	5 10 0
Do. Petersburg ..	do.	8 10 0	—
Deals, Archangel 2nd & 1st	per P.Std.	11 0 0	24 15 0
Do. do. 4th & 3rd	do.	10 5 0	15 10 0
Do. do. unsorted	do.	5 12 6	6 10 0
Do. Riga	do.	6 15 0	12 10 0
Do. Petersburg 1st Yellow	do.	16 10 0	—
Deals, Petersburg 2nd Yell.	per P. Std.	9 0 0	17 5 0
Do. do. White	do.	18 15 0	11 10 0
Do. Swedish	do.	5 15 0	15 15 0
Do. White Sea ..	do.	12 15 0	15 5 0
Do. Quebec Pine, 1st ..	do.	17 15 0	18 5 0
Do. do. 2nd ..	do.	13 0 0	—
Do. do. 3rd &c.	do.	10 15 0	12 15 0
Do. Canadian Spruce 1st	do.	—	12 0 10
Do. do. 3rd & 2nd	do.	7 10 0	10 5 0
Do. New Brunswick ..	do.	7 15 0	8 0 0
Battens, all kinds ..	Per P. Std.	6 10 0	16 0 0
Flooring Boards 11in. prepared, 1st	per square	0 9 9	0 11 6
Do. 2nd	do	0 7 9	0 11 3
Do. 3rd &c.	do	0 7 3	9 9 0

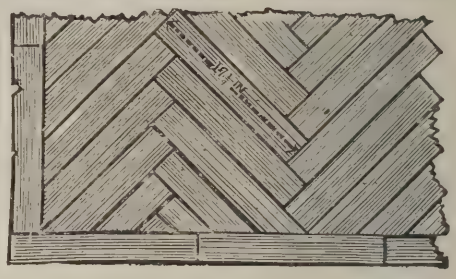
HARD WOODS.

Ash, Quebec	per load	3 12 6	—
Birch, Quebec	do.	3 12 6	3 17 6
Box, Turkey	per ton	15 0 0	20 0 0
Cedar, Cuba	per ft. sup.	0 0 3¾	0 0 5
Do. Honduras ..	do.	0 0 4 9/16	—
Do. Tobasco	do.	0 0 4 3/32	—
Elm, Quebec	per load	4 0 0	5 2 6
Mahogany, Average Price for Cargo, Honduras ..	per ft. sup.	0 0 5 1/16	—
Do. African ..	do.	0 0 3 7/16	—
Do. St. Domingo	do.	0 0 3¼	0 0 6
Do. Tobasco ..	do.	0 0 4 21/32	—
Do. Cuba ..	do.	0 0 4¼	0 0 8 7/20
Oak, Dantzic and Memel	per load	3 5 0	3 15 0
Do. Quebec	do.	6 5 0	6 10 0
Teak, Rangoon, planks ..	do.	10 0 0	17 10 0
Wainscot, Riga (Baulk)	do.	3 15 0	5 15 0
Walnut, Odessa Crown	do.	3 15 0	5 15 0
Do. American ..	per ft. cube	0 2 0	—

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17½ × 3 × 1½	6 10	6 3	10 1



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THE BUILDERS' JOURNAL AND ARCHITECTURAL RECORD

DEC. 17, 1902. No. 410.

EFFINGHAM HOUSE, ARUNDEL STREET, STRAND, W.C.

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An Architectural Causerie.

The Building By-law Reform Association.

FOR a long time past efforts have been made to change the by-laws which hamper building in rural parts so much and so unnecessarily. Every architect knows that requirements are insisted on which are simply foolish, just as if the risks and consequences of fire in a house on a country site (maybe hundreds of yards from any other house) were the same as in town and city buildings huddled together on every foot of space. And not only are such requirements foolish when imposed on rural districts, but they are most detrimental to the housing of the labourers—a difficult problem enough under the best conditions, but doubly so under the old "model" by-laws. The urgent necessity for relieving these dead-weights of by-laws has resulted in many representations in official quarters, and we may hope that eventually the desired changes will be made. Meanwhile, to forward the movement, an association has been formed called "The Building Bye-law Reform Association" (the spelling might be reformed to begin with—we have explained more than once that it is "by-law," not "bye-law"). This Association—the minimum annual subscription to which is half a guinea—was formed last week and includes Sir William Chance and Messrs. E. D. Till, A. H. Clough, W. M. Acworth, Anderson Graham, Christopher Turnor, Mark Judge, E. L. Lutyens, Thackeray Turner, A. H. Vowell, W. Lacy Ridge and R. W. Schultz. A provisional council has been elected, and Mr. R. A. Read, of 45, Parliament Street, has been appointed secretary for the time being. The special objects of the Association, which has our hearty support, are as follows:—(1) To promote the adoption of the new model building by-laws for rural districts (which are approved and recommended by the L.G.B.), or in the rural portions of urban districts where the old model by-laws are still in force; (2) to promote the adoption of the new model building by-laws for rural districts by the authorities of such districts, or of districts partly urban and partly rural where the authorities may wish to adopt building by-laws; (3) to promote amendments which will bring the by-laws of urban districts more into accordance with present requirements and modern science; (4) to secure some method of appeal to the Local Government Board or other authority where the enforcement of any by-law would create a hardship and its non-enforcement could do no damage to the interest of the public generally; (5) to assist as far as possible, in suitable cases, those who may be oppressed in any way by building by-laws.



BATTERSEA BRIDGE DWELLINGS. (L.C.C. ARCHITECT'S DEPARTMENT).

Sugared Mortar.

WITH bricklayers and masons thrown out of work by the frost, certain minds have resuscitated the plausible idea of mixing sugar with the mortar and so enabling building operations to be continued in winter. But there is very little use in the suggestion. To begin with, the reason why building work is stopped in winter is because the water in the mortar freezes and disintegrates the crystalline structure essential to its binding. Vicat, in his great book on cements, stated that a small quantity of the coarsest sugar dissolved in water would correct in some degree the bad qualities of rich limes, and that sugar was extensively used in the East for common mortars made of calcined shells which, when well prepared, "resist the action of the weather for centuries." Experiments were made some years ago to ascertain the effect of sugar on Portland cement, and an addition of from $\frac{1}{8}$ per cent. to 2 per cent. of pure sugar added to Dyckerhoff's German Portland cement was found to considerably increase its strength after three months. The sugar was said to "retard its setting," and thus permit the chemical changes in the cement to take place more perfectly, but more than 2 per cent. of it rendered the cement useless. We see, therefore, that the only advantage of adding sugar to mortar is that it retards the setting somewhat; and it does this by forming a protective coating that prevents the air (and the carbon dioxide in it) reaching the mass and so turning the lime into chalk. But this is a doubtful advantage when a slight excess of sugar will spoil the mortar. The only effective way is to use unslaked lime. The heat generated will then prevent the mortar being frozen for some time.

Battersea Bridge Dwellings.

THESE buildings occupy a site close to Battersea Bridge, on the south side of the river. Like the rest of the Council's recent dwellings, they are built of red bricks with red tiles on the roofs and cement dressings. They reflect great credit on the Architect's Department—a department which is producing far better work than the Government officals.

OUR COMPETITION AWARDS.

AS announced in our issue for December 3rd, eighty-three designs were sent in for our competition—the remodelling of the front of No. 182, Fleet Street, London. That so large a number should have been received proves that the competition was a most popular one among our readers; and rightly so, for the problem was essentially modern—such, indeed, as might come within the everyday practice of an architect—and we think for that reason every competitor will have benefited by the educational experience to be gained from such a task.

We have very carefully considered all the designs, and award the three prizes as follows:—

First—
J. ALGERNON HALLAM,
18, St. Mark's Crescent,
Regent's Park, London, N.W.

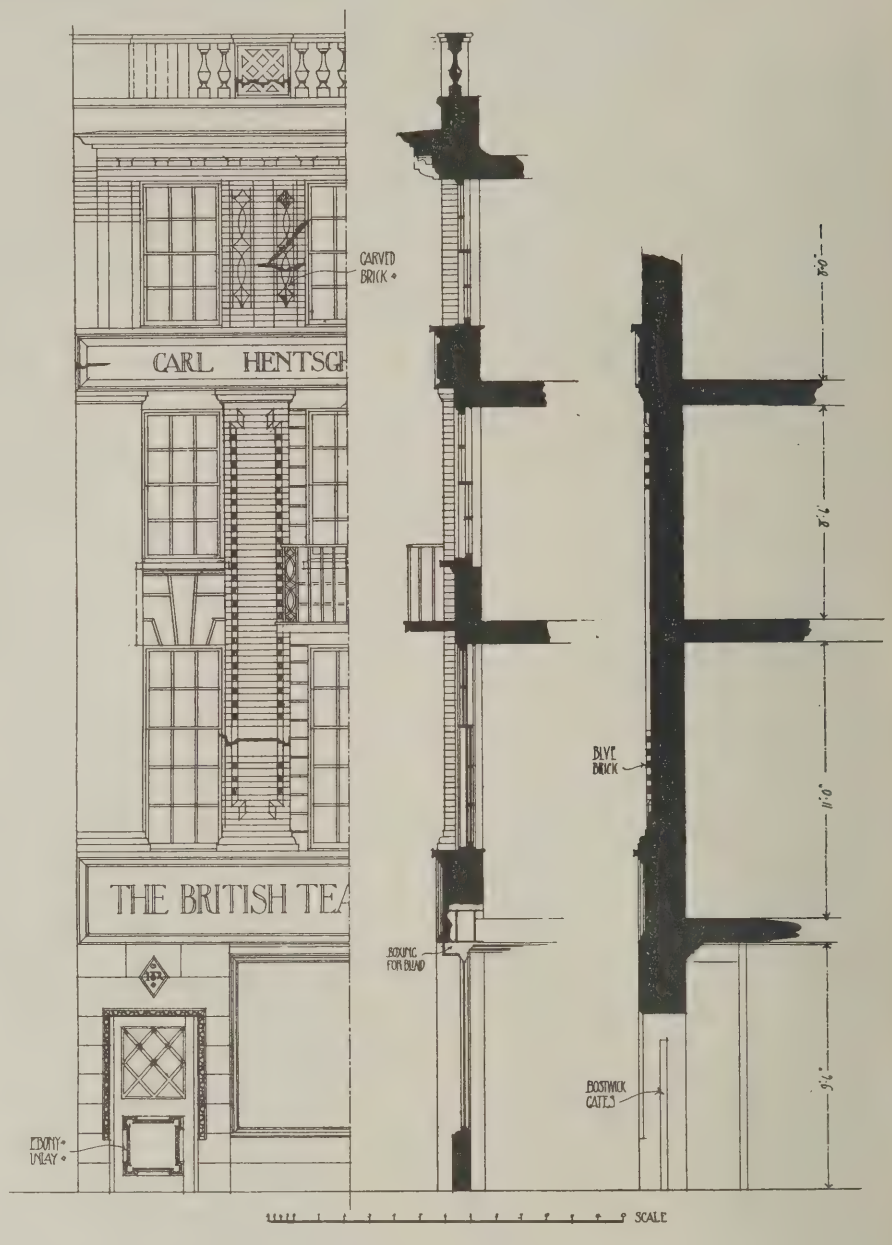
Second—
A. R. BARKER,
Green Hill,
Harrow.

Third—
ALLAN M. C. YOUNG,
135, Kennington Road,
Lambeth, London, S.E.

Cheques for £5 5s., £3 3s. and £2 2s. respectively have been sent to these gentlemen, and their designs are reproduced in our centre-plates this week, the details of the second- and third-premiated designs being given on this and the next page.

Designs were received from the following towns:—

Alderley Edge	London
Ascot	Mansfield
Ashford (Kent)	Newcastle-on-Tyne
Bath	Newport (Mon)
Birmingham	Oxford
Bletchley	Peterborough
Bolton-le-Moor	Portsmouth
Brotton (Yorks)	Prestwick, N.B.
Cardiff	Richmond (Surrey)
Darlington	Rochester
Dromore (Co. Down)	St. Albans
Edinburgh	Sedbergh
Glasgow	Shipton
Guiseley	Southampton
Halifax	Southport
Harrow	Stoke-on-Trent
Heaton-on-Tyne	Sunderland
Hertford	Torquay
Idle	Wakefield
Inverness	Walsall
Ipswich	Wednesbury
King's Norton	Weymouth
Leeds	Wickham, R.S.O.
Liverpool	Wonersh (Guildford).



DETAILS OF SECOND-PREMIATED DESIGN FOR THE FRONT OF NO. 182, FLEET STREET, LONDON; BY A. R. BARKER.

The Winning Design

is, in our opinion, far and away the best of all sent in. The ground floor, with the shop front, is very satisfactorily dealt with, plenty of light is provided for, and the woodwork is squarely treated, as most consistent with its nature—the heads to the panels in the doors would, we think, have been better kept square like the rest of the work. The small panes above the shop window look well, though, if carried out as shown with wood glazing bars, would collect a great deal of dust and be difficult to keep clean—a very important matter in a restaurant. The treatment of the windows on the first and second floors is good, and the pattern of the brickwork would look well in execution. On the third floor of the building are a number of bevelling, rouletting and other machines which require a good light, and this requirement is admirably recognized and provided for; the arrangement of the six windows right across the front is in good proportion to those below and to the three dormers in the roof above. A very notable feature in this design is the girder over the shop front, which is copper-plated with brass letters screwed on to it. This is quite a novel suggestion, and we should like to see an experiment in plating exposed ironwork with other metals; a thick coating of copper, which might be allowed to go green, would form an agreeable groundwork for the lettering. The treatment of the girder with the moulding carried around it, and the shop-blind casing underneath, overcomes the objection raised against the barrenness of exposed ironwork. The cornice above the third-floor windows with the name of Messrs. Carl Hentschel below is a pleasing relief to the front. Altogether we must congratulate the author on the success of his design, which, too, shows a good knowledge of construction and is a skilful piece of draughtsmanship. The following are the particulars which accompanied it:—

"My idea has been to make a plain substantial design, suitable for a commercial building. All the joinery to the shop front to be teak—oiled, not polished. The girder over the shop front is not enclosed, the front joist being electro-plated to protect it from rust. The letters to be brass (with about 1in. projection) screwed to the joist. The piers with stone bands at each side of the building are to disconnect the design from the buildings to the right and left. All the stone to be Portland. The bricks to be a dark colour, say, cherry red, with orange-red quoins, which are shown darker on the drawing. All the brick to be sand-faced, not smooth-pressed, with rather wide joints pointed in white. The arches to be rubbers with stone key-blocks. The sashes on the first and second floors to be painted white. The casements on third floor to be iron with lead glazing bars. The letters on the stone frieze to be bronze, with about 1½in. projection. The roof to be covered with Westmoreland slates. I have not shown the telephone-room on the first floor, as this could be of any size, the partition coming on one of the piers."

The Design placed Second

has good feeling in its general effect, but there are many noticeable defects. First, the height of the ground floor is only 9ft. 6in. This is certainly a mistake. This height is not sufficient for a public restaurant and, secondly, was inadvisable because a higher window would have lighted the shop farther back. The doorways look small, but this is due to the fact that they have no fanlights—in reality they are 7ft. high. No distinction is made between the entrance to the shop and Messrs. Hentschel's entrance. Doubtless the

author endeavoured to give a solid appearance to the lower part of the building, but we do not think he is justified in making the ground-floor ceiling so low and adding height to the first floor. Then, again, the little balcony on the second floor is foolish, for it would only hold two or three persons, and these would need to jump down more than 2ft. from the window. This balcony appears to have been an afterthought added to counteract an undue verticality in the elevation. The deep keystones between the heads of the first-floor windows and the sills of those above are a meaningless feature and unsatisfactory in appearance. The piers extending up the first and second floors give a strong feeling to the design, though the ornamental pattern applied to them would probably not look well when carried out. But the middle piers on the third floor do not come squarely over those below and a lop-sided effect is thus produced. The design, on the whole, is only fairly good. The draughtsmanship is hurried and careless.

The following are the particulars which accompanied the design :—"The object of this design has been to give the appearance of strength to the lower portion of the building instead of the whole building resting on invisible girders and stanchions, as so often done now. The materials consist of brick and stone. The letters to be of stone projecting about an inch. The projection of the balcony, if not allowed under clause 73, section 2, can be built by special permission."

The Design placed Third

does not exhibit any particular merit, but is a quiet unobtrusive design with fewer faults than the remainder. Plenty of light is provided on the ground floor, but the treatment of this part of the building is decidedly weak, though a distinction has been made between the two entrances. The sunblind, by the way, does not need to extend over Messrs. Hentschel's doorway. The problem of the shop front, which was the crux of the competition, has been ignored. On the first, second and third floors the windows are too small. As regards the balustrade on the top floor, the central pedestal between the balusters keeps light out from the window behind, which might easily have been avoided by putting a pedestal at each side instead of in the middle. The following are the particulars which accompanied the design :—

"Brickwork to be best picked stocks for general work, best red rubbers for quoins and arches of windows. All stonework to be Portland stone. Shop front to be of fumed oak, wax polished. Woodwork to all sashes to be of best fir painted white. Casements in bay to be iron casements painted very dark green. Leaded glass over shop front to have ⅛in. cames. Roof to be covered with lead, also dormers. Lettering on stonework to be cut into the stone (**V**-section) ½in. deep. Lettering on fascia board to be of gun-metal letters screwed in place. Shop front to rest on a granolithic sill. Rainwater pipe to be 4in. lead."

Other Designs.

Of the remainder of the designs, we reproduce six by the following gentlemen :—

Oswald P. Milne,
Hendon, London, N.W.

Herbert A. Hall,
Southgate, London N.

C. Pitwood Carter,
Mansfield.

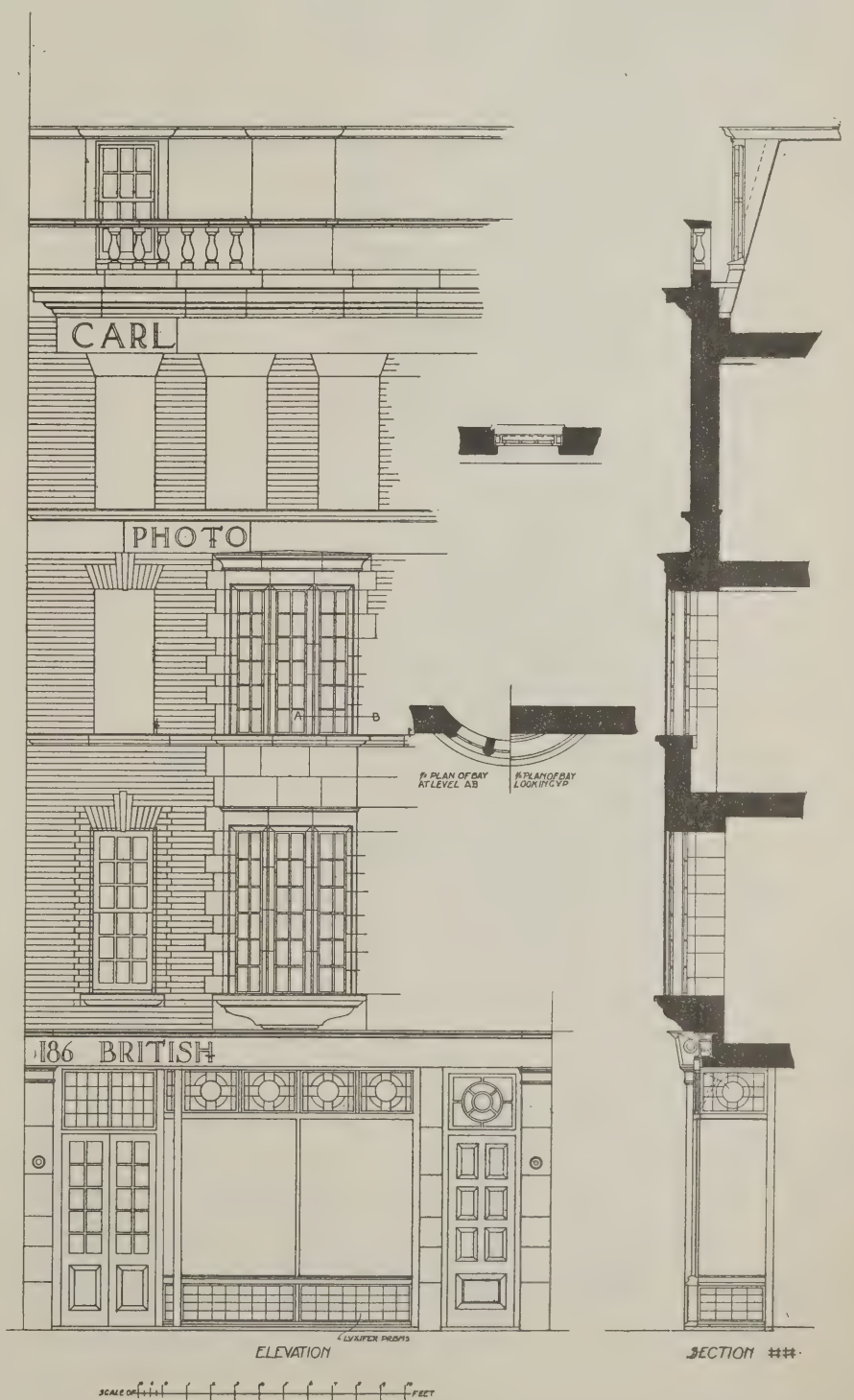
A. McInnes Gardner,
Westminster.

Charles B. Smith,
Ipswich.

Edward Cratney,
Newcastle-on-Tyne.

These designs are not very commendable, but they are the best of the remainder. We do not propose to criticise them in detail because it would serve no purpose, but we may mention that the competitor who constructs his piers of roof tiles in cement does not exhibit a very intelligent knowledge of construction. A number of competitors take special care to state that they have fulfilled the conditions, but their designs grossly disregard them. Moreover, a host of useless and foolish features are introduced, and there is a straining after effect which at once condemns these efforts—arches are introduced which would never support the weights on them—one competitor provides windows 10in. wide, another starts them 4ft. from the floor, another adds a storey, another puts a 5ft. 3in. circular window on the top floor, another introduces a lion's head 3ft. 6in. high, and so on. Then, again, the majority of the designs are of the ordinary kind which make streets commonplace, and their authors have simply copied other men's treatments or produced a distressing hotch-pot.

Reviewing the competition as a whole, while we are very gratified to see such a large number of designs, we cannot feel satisfied with the great bulk of them. The problem, though apparently simple and straightforward, is certainly a difficult one to solve satisfactorily. We do not lose sight of that fact. We note, too, the trouble which competitors have taken, and the very painstaking way in which most of the drawings are executed. Yet the designs themselves fall far short of the standard ; and if we may take them as an indication of what the young architects of this country are capable of, we cannot help feeling that there is a dearth of talent, an ignorance of proper construction, and a want of that skill, propriety and feeling for style which characterise all buildings worthy of the name of architecture.



DETAILS OF THIRD-PREMIATED DESIGN FOR THE FRONT OF NO. 182, FLEET STREET, LONDON ; BY ALLAN M. C. YOUNG.

ARCHITECTS AND FIRE PREVENTION.

A MEETING of the Society of Architects was held on Thursday last at St. James's Hall, Piccadilly, the chair being occupied by Mr. G. Gard Pye.

Mr. Ellis Marsland, hon. secretary of the British Fire Prevention Committee, read a paper on "Recent Conflagrations and their Lessons to Architects." Mr. Marsland selected two great fires for comment—that which occurred in June last year and destroyed the Entrepôt Royal, or the Government Bonded Warehouses, at Antwerp; and the more recent Barbican fire. He described the former building in detail—it consisted of three main blocks, each six storeys high, the walls of brick with stone dressings and the floors chiefly of wood joists carried on iron girders and columns—and pointed the moral that buildings should be divided into sections by division walls, that all openings should be protected by efficient double iron doors, and that the fire appliances should reach to the top storey.

He then went on to speak of the responsibility of the architect in this matter of fire-resisting construction. When such a thing was suggested to the client he was met by some or all of the following

Objections.

(i) Why should I build my premises of fire-resisting material if the insurance companies will make no difference in the amount of premium between a fire-resisting building and a combustible one?

(ii) Why should I build to resist fire if my neighbour is not compelled to do the same, and his building igniting, sets fire to mine?

(iii) Why should I build to resist fire if by reason of the increased cost of my building my assessment is increased?

These, said Mr. Marsland, are all, of course, very pertinent objections; and with regard to the first, the insurance companies not being philanthropic institutions, but existing for profit, do not as yet see their way to make any material reduction, as in a large conflagration the result more often is the complete destruction of both classes of building.

Protection of Openings.

The Barbican fire spread through the windows, either those fronting the streets or those looking into the light courts. Does not this suggest that all these openings should be protected by iron or hardwood shutters, or by asbestos blinds, and that these should be closed every night at the conclusion of business as a matter of ordinary routine? I do not say that this method would prevent the spread of fire entirely, but it would retard its progress so as to enable the fire brigade to surround a fire instead of having to go in all directions, following outbreak after outbreak, by reason of the fire travelling through window openings.

We are sometimes tempted to be dissatisfied with our fire appliances; but, given a good stiff breeze, as happened on the occasion of the Barbican fire, how are you going to cope with fires breaking out in all directions and on all floors at once by reason of the glass in the window openings giving way and carrying the flames through? Look at New Zealand Avenue, with its *cul-de-sac* and large area of opening: the fireman has not half a chance, and the wonder is not that the fire was so large but that it was confined to such comparatively small limits through the indomitable perseverance of the brigade.

The Insurance Premiums.

If, as I suggest, insurance companies could be persuaded to countenance this form of protection and reduce their premiums to those clients who adopted them, it would be, I think, to their advantage, or there might be legislation on this head making this form of protection compulsory. Objection has been urged that if premises are so straitly shut up it would perhaps be difficult to detect a fire in its incipient stage, but then the automatic fire-alarms and sprinklers would come in. We have also in lieu of shutters a recent invention in the form of wired glass, with which the windows could be glazed into metal or hardwood frames, or directly into stonework or brickwork.

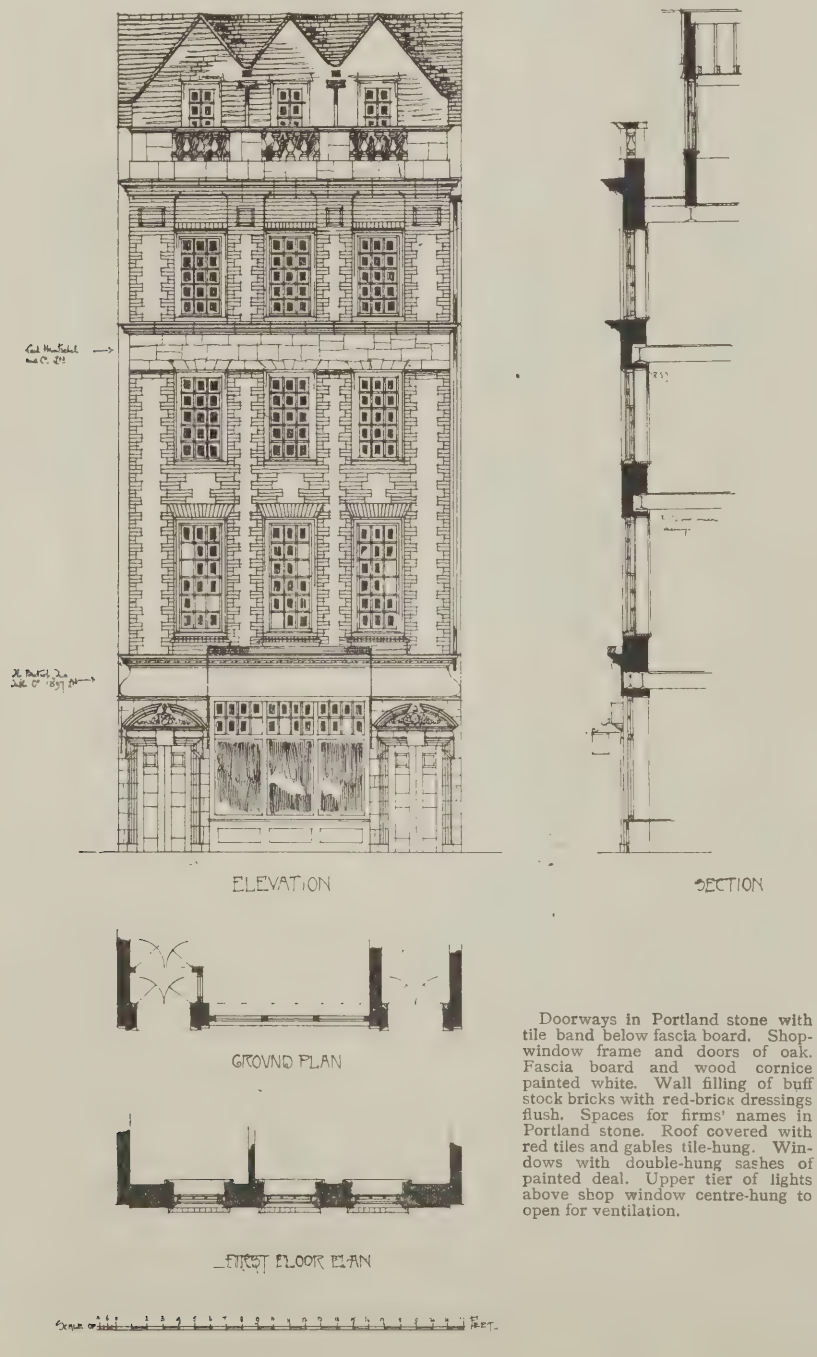
Compulsory Fire-resisting Construction.

The second objection could of course only be dealt with by legislation, and, if this were desirable, certain sections or zones of a city which are devoted to buildings of the warehouse class might be compelled to be of fire-resisting construction, and rules framed for such, penalties also being levied against those who by their indifference or carelessness endanger their neighbour's property.

In Germany, I understand, a man is made personally liable if it is found after a fire he has neglected any of the precautions which he is bound by law to take. Without, perhaps, going quite so far as this, a man, for instance, who neglects to see that any opening in which fire-resisting doors are fixed is not closed every night at the conclusion of the day's work might be liable to a penalty. At present the law provides for doors in a party wall under certain circumstances, but does not provide for them to be closed when the premises are vacated, thus in many cases rendering them inefficacious. Neglect to provide proper exits in case of fire might also be the subject of personal responsibility, as it would conduce to greater caution on the owner's part if he were made personally responsible for the safe exit of his employees in case of fire.

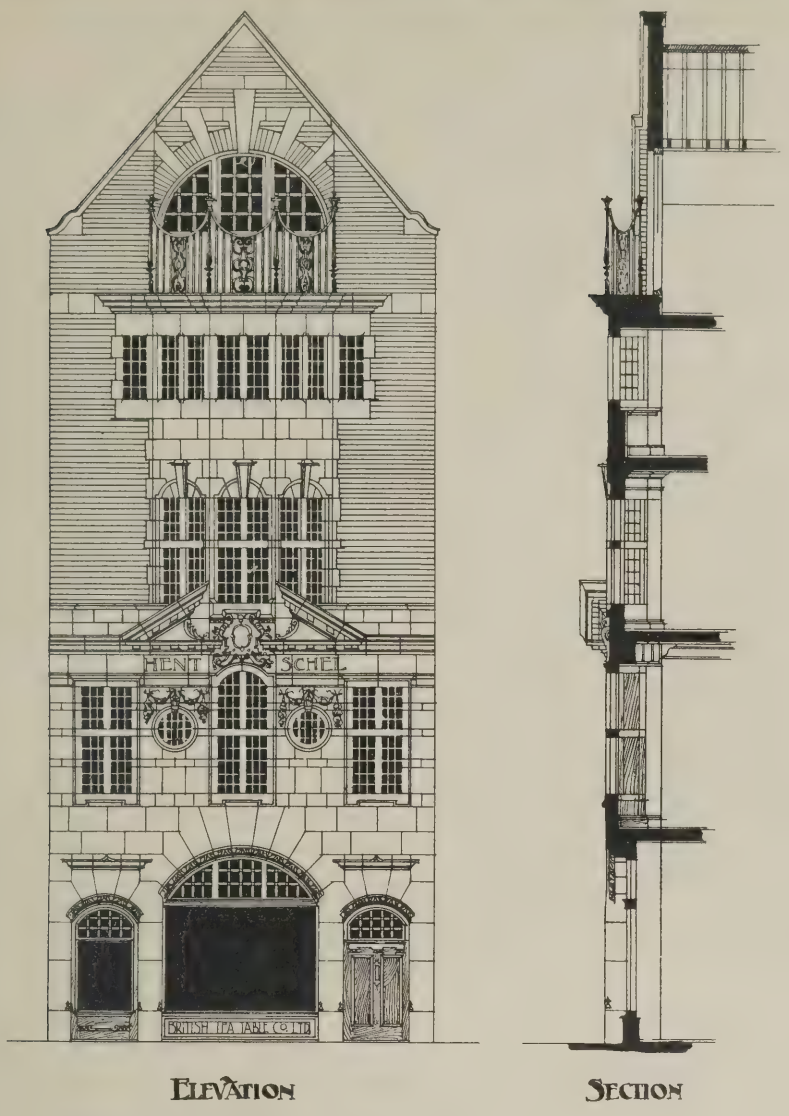
The Individual Owner.

The third objection is one which is of great importance, and it appears to me that if a building owner, by reason of additional expense, renders his building fire-resisting, he renders a service to the community, and should in consequence have his assessment reduced instead of increased. If municipalities would only look at this matter in the



Doorways in Portland stone with tile band below fascia board. Shop-window frame and doors of oak. Fascia board and wood cornice painted white. Wall filling of buff stock bricks with red-brick dressings flush. Spaces for firms' names in Portland stone. Roof covered with red tiles and gables tile-hung. Windows with double-hung sashes of painted deal. Upper tier of lights above shop window centre-hung to open for ventilation.

DESIGN FOR THE FRONT OF NO. 182, FLEET STREET, LONDON; BY OSWALD P. MILNE.



Ground and first floors and bay in Bath stone; main wall and gable in red facing bricks with stone bands. Roof covered with green slates. Rainwater pipe in chase in party wall. Set-back of brick wall carried by girder. Sunblind either in shop transom or as a separate fixture over the stone arch.

DESIGN FOR THE FRONT OF NO. 182, FLEET STREET, LONDON; BY HERBERT A. HALL.

right light they would see that a citizen who aims at fire-resistance in his building is a public benefactor, as he tends to reduce the precautions which are now necessary to be taken by the municipality to protect the community from fire and loss, and thus save expenditure; and this is a point in the incidence of taxation well worthy the attention of corporations.

Some Suggestions.

In view of the Barbican fire, I should like to make the following suggestions for buildings of the city warehouse class:—

That all supporting piers should be constructed, where practicable, of brick.

That all roofs should be flat and of fire-resisting construction.

That all windows should be protected by fire-resisting shutters or wired glass.

That all floors should be fire-resisting, and all iron girders, columns and supports be protected by special plaster or hollow tile covering and not tied into walls.

That all staircases be enclosed by at least a 9in. wall carried up to the roof, and any openings on to the same be filled with fire-resisting doors.

That all lifts be enclosed with at least a 9in. wall, and carried up through the roof and covered with a skylight of light iron and glass, and all openings on to the several floors be filled with fire-resisting doors.

I feel assured that if the above-mentioned precautions were taken, coupled with the promptitude with which the fire brigade arrives on the scene, a fire would be confined to the building in which it originated, and a large amount of loss and inconvenience averted.

VAUXHALL BRIDGE.

A Trenchant Criticism by Mr. Caröe.

TWO letters from Mr. W. D. Caröe and Professor Beresford Pite respectively appeared in the "Times" for December 9th. In the course of his letter Mr. Caröe says:—

"It is unquestionably but surprisingly the fact—which, I believe, I here state publicly for the first time—that under the Vauxhall Bridge Act as now interpreted it is absolutely impossible to construct a stone bridge without an entirely impracticable gradient.

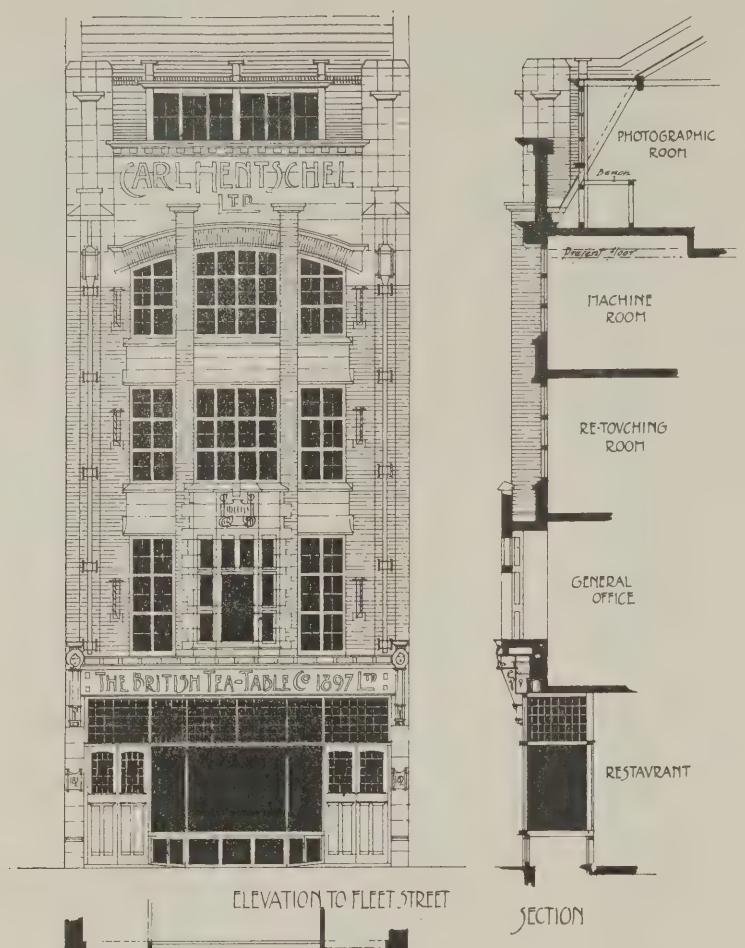
"Who is responsible for the drafting of and calculations for the Vauxhall Bridge Act? Is it the L.C.C. or the Thames Conservancy, or both? . . .

"At any rate, it is a curious fact that Sir A. Binnie produced a design for a granite bridge—poor thing though it was—obtained the Conservators' approval as well as that of his own body, schemed and began to lay the foundations for it, and then retired from office. We learn now positively that nothing can make the design conform to the Act of Parliament to meet which and under which it was conceived, and that the foundations are quite inadequate to carry any granite or stone bridge whatever. Now, if this be indisputable, bungling of this sort, when great and costly public monumental works are at stake, cannot be lightly slurred over, as the Bridges Committee and the L.C.C. have tried to slur it over. I have the highest regard for Sir Alexander Binnie and his distinguished engineering ability (except as a designer of beautiful bridges), and it is hard to believe that he is unable to put an entirely different complexion upon the affair . . .

"The debate at Spring Gardens upon the 25th ult. was a singularly deplorable performance . . . . Nothing but disaster is to be expected from a body of men who have proved to us that they do not know, and who apparently refuse to be told . . .

"Banalities about the safety of copying Westminster Bridge (one of the worst types artistically we possess, because to the uncultured eye the most insidious in its unscholarly, unstructural and meretricious ornament); ridiculous gibes about artists . . . ignorant comparisons between art and utility . . . laudation of the 'primitive' (yes, truly!) 'common-sense' of the L.C.C. in art matters (so well displayed, no doubt, when it erected that prize piece of vulgarity, Hammersmith Bridge, at one end of its jurisdiction, and pulled down one of its own scheduled historical monuments, Tudor House, Bromley-by-Bow, at the other)—such and similar specimens of argument exhibited a pitiable case for the collective culture of our councillors in these matters of vast concern and importance to Londoners—not only now, but probably for many long years to come . . .

"There seems but one remedy, and that, it must be confessed, none too sure. When next a Bill is before Parliament involving questions which affect the better public art and culture of the metropolis, a serious endeavour must be made by those who care



Lawrence's sand bricks and Mansfield Woodhouse yellow limestone. Ventilation by louvre inlets in splays communicating with flue and proper inlets. Outlets fitted with extracting fans. Upper part of shop window with Luxfer prisms to open as hoppers. Fascia board in glazed work with a row of electric bulbs at the back. Nonflammable woodwork

DESIGN FOR THE FRONT OF NO. 182, FLEET STREET, LONDON; BY C. PITWOOD CARTER.

(and they are not a few) to secure the embodiment of a clause which will so far regulate the matter in hand that the proper experts shall be consulted and certain selected men of taste and training shall have a determining voice in the design or scheme to be carried out . . ."

Prof. Beresford Pite and Mr. Woodward.

Prof. Beresford Pite in one part of his letter refers to Mr. Woodward's remarks (see p. 262 of our issue for December 3rd). Mr. Woodward, he says, is well-known "as the Merry Andrew of debate at the Royal Institute of British Architects; there is an unconscious humour in his expositions on art that is irresistible to those who have the pleasure of knowing both him and his buildings, and which his friends would not sacrifice for much added culture of artistic thought or expression." In exchange for Mr. Woodward's opinions Prof. Pite offers a few by eminent engineers—Mr. J. Husband, Sir A. Binnie himself, Mr. C. Hawksley, Sir Guildford Molesworth and Sir Benjamin Baker—engineers who have regarded collaboration with architects as desirable in matters of the kind under notice.

Sir Benjamin Baker had said that when very young he thought he could do without architects and he had designed and carried out some very pretty work indeed. It had been so pretty that it had attracted the attention of Mr. Ruskin, who had mentioned it in one of his lectures. There had been columns and arches and scrolls in ironwork, and Mr. Ruskin had said that he had seen it, and that it made him wish that he had been born *a blind fish in a Kentucky cave!*

The Oxford Architectural Society held its annual meeting last Wednesday week, Mr. J. L. Myers presiding. Mr. E. W. Allfrey proposed the re-election of Mr. Myers as president, Mr. Guy seconded, and the meeting agreed.

Barry Municipal Building and Public Library Competition has been decided in favour of a design by Messrs. C. E. Hutchinson, A.R.I.B.A., and E. Harding Payne, A.R.I.B.A., the second premium being taken by Mr. William H. Ashford, A.R.I.B.A., and the third by Mr. George Dickens Lewis.

Bricks and Mortar.

Aphorism for the Week.

A Doric temple differs from a Gothic cathedral as Sophocles does from Shakespeare. —HAZLITT.

Our Plates. PARTICULARS of the competition designs for the front of No. 182, Fleet Street, London, are given on p. 290 of this issue.—By a curious error, particulars of the Mayo School of Arts, Lahore, India (which will be published next week), were given on p. 284 of last week's issue, when no reference was made to the Stock Exchange extension. This latter drawing was exhibited at the Royal Academy this year. The following particulars have been sent to us by the architect, Mr. R. Langton Cole, F.R.I.B.A.—The Stock Exchange, London (which celebrated this year the centenary of its existence on its present site), has been compelled to provide increased accommodation for its members at intervals throughout its career. There were large extensions in 1832, 1853, 1872 and 1885, and smaller ones in 1874, 1893 and 1897. The process of expansion is still continuing, and the extension illustrated is an instance of the fact. It has an area of about 4,000 sq. ft., and has been formed by throwing two storeys of offices next Old Broad Street into the "House" without removing the front wall or rebuilding more than a portion of the storeys above. The latter are carried by the arches shown in the perspective view and by steel girders at right angles to them; the girders are supported by steel stanchions, so as to reduce the size of the piers. The style of the extension is an adaptation of that used by the late Mr. J. J. Cole in his buildings of 1885, with an enriched plaster ceiling corresponding with that of the old buildings. The piers and pilasters are of red Peterhead granite, and the absence of bases is due to the fact that when introduced in the past they have had to be cased with oak, the polished stone being too cold to lean against with comfort. In lieu of bases, therefore, the lower part of each pier is cased with oak, so that seats can be placed against it, and the upper part is so framed as to be used as notice boards and to enclose the shafts which supply fresh air to the building. The capitals, imposts, strings and arches are of hard white Portland stone, and the walls and spandrels are lined with Pavonazza marble. The floor is of teak (screwed throughout), and the skylights, which light the space furthest from the street, are covered with wired glass. There is one fireplace enclosed by a moulded chimney-piece of Rosso Antico marble, the building being warmed by exhaust steam, a range of pipes running round the extension on the string-course 12ft. from the floor, and large radiators being placed in the entrance lobbies. The remodelling of No. 75, Old Broad Street, which was comprised in the alterations, included the erection of a new building next to Hercules Passage, with a new lift and staircase. The contractors for the extension were Messrs. E. Lawrance & Sons, who have carried out a somewhat difficult alteration in a satisfactory manner. The steel-work was executed by Messrs. Dawnay & Sons, the granite and marble by Messrs. Fenning & Co., and the heating by Messrs. Rosser & Russell. Mr. T. J. Turner was the clerk of works.

American Travelling Scholarships. WASHINGTON UNIVERSITY opens this year a regular course in architecture, which has been for some time in preparation. The course occupies four years, and is modelled upon that of the other great architectural schools in America, resembling most, perhaps, that of the Massachusetts Institute of Technology. Candidates for travelling scholar-

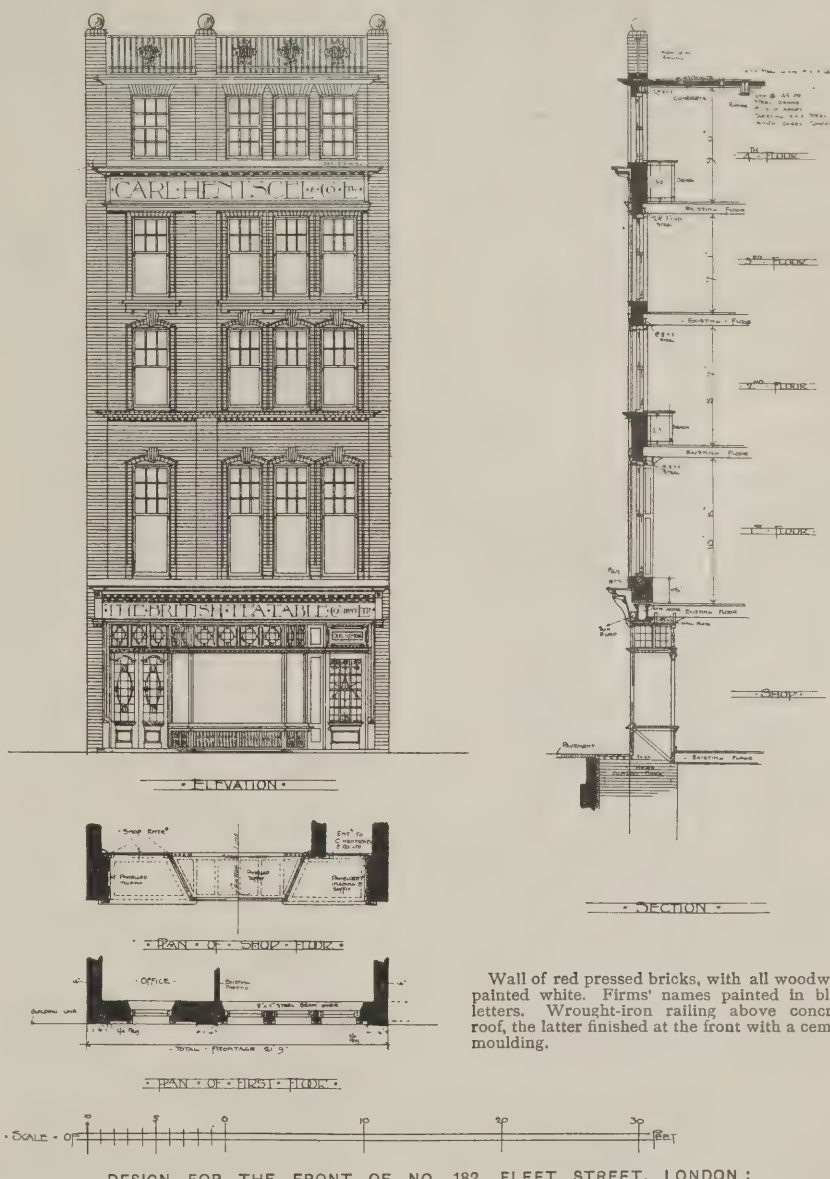
ships are required to spend the whole winter in work upon six rendered problems and six sketch problems, after which they must pass a satisfactory examination in construction, architectural history and elementary French. The award will be made by a jury of three prominent architects residing outside the State of Missouri, three rendered problems and two sketch problems being selected, to be submitted by each candidate.

The R.A. Fund for the Campanile. Among the first list of subscribers to the Royal Academy fund towards the rebuilding of St. Mark's Campanile, Venice, we notice the names of Mr. Aston Webb (£5 5s.), Mr. T. G. Jackson, Mr. J. W. Waterhouse and Mr. John Belcher (£5 each). Mr. Jackson says in a letter: "That the reconstructed Campanile will not have the interest of the old goes without saying; but to proceed, as some do, to argue that for that reason the Campanile should not be rebuilt at all is surely archæology gone crazy. With the Campanile Venice has not only lost the most conspicuous feature in the picture we all know and love so well, but she has lost the visible emblem of her old civic constitution. We can, at all events, recover the picture and preserve the tradition."

New College, Oxford. The Oxford Architectural and Historical Society recently visited New College. The proceedings began at the chapel, where Mr. Rait pointed out the mistakes of the restorers. Sir Gilbert Scott raised the roof, thus spoiling the proportions; then, to remedy matters, put in the oak canopy, which hides the window inscriptions without in the slighest degree improving his original error. It was amusing to hear that Adam and Eve in the north-west window had been clothed at the earnest desire of a former warden and his wife. The oldest glass is in the window heads, dating from the fourteenth century. The figures in the reredos are by Westmacott. Leaving the chapel, the visitors were led around the cloisters. Next came the hall. The oak used in its roof came from trees on the college estates, the foundation being fortunate enough to own large oak forests in Buckinghamshire. The lantern does not serve its original purpose, which was to let out the smoke, the original fireplace having been in the middle of the hall, without a chimney. Next came the muniment room, where the old deeds are kept, after which a tour was made of the numerous other parts of the college.

Royal Academy Studentships. The President of the Royal Academy last week presented the prizes to the successful students. Sir E. J. Poynter stated that the members of the Academy who had examined the drawings, sculptures and paintings from the life had pronounced them to be a great advance on the work of the past two or three years. The awards in subjects allied to architecture are as follows:—

Design for the decoration of a portion of a public building: prize (£40), William Ewart G. Solomon. Model of a design: first prize (£30), Mary Constance Buzzard; second prize (£10), Frederick Brook Hitch. Set of four models of a figure from the life (open to male students only): first prize, (£50), and silver medal, Charles Leonard Hartwell; second prize (£20), Charles James Pibworth (disqualified owing to having received the same prize before). Model of a bust from the life (open to female students only): silver medal, first, not awarded; silver medal, second, Elsbeth C. P. Rommell. Model of a design containing figure and ornament: silver medal, Charles James Pibworth. Model of a statue or group: silver medal, first, Leonard Jennings; silver medal, second, Frederick Brook Hitch. Design in architecture: travelling studentship (£60), James Black Fulton. Set of architectural drawings: silver medal, first, Percy Elton; silver medal, second, Victor Wilkins. Set of architectural designs (upper school): prize (£25), Fitzroy Hyde Darke. Set of drawings of an architectural design (lower school): prize (£10), Alfred William Blomfield. Plan of a building: prize (£10), George Thow Smith. Original composition in ornament: silver medal—no competition. Perspective drawing in outline (open to architects only): silver medal, George Albert Hill.



Wall of red pressed bricks, with all woodwork painted white. Firms' names painted in black letters. Wrought-iron railing above concrete roof, the latter finished at the front with a cement moulding.

DESIGN FOR THE FRONT OF NO. 182, FLEET STREET, LONDON; BY A. MCINNES GARDNER.

Ornamental Leadwork. At the Crafts School, Bethnal Green, last Saturday week, Mr. F. W. Troup gave an interesting lecture on "Roof and Ornamental Leadwork." The craft of the "water-leader," or internal plumber, the lecturer pointed out, had gradually developed its scientific side, and had so far influenced lead-working generally as to have driven the artistic possibilities of lead quite out of the field. In mediæval times lead was lavishly used for decorative purposes, and workers in lead must have taken equal rank with sculptors and other skilled craftsmen. Many examples existed all over the country and on the Continent of roofs, spires, figures, vases, urns and coffins—some of them with the most elaborate and exquisite ornament. In olden days the whole work was often done on the building, and the lead was sent on to the site in the form of ingots. Great skill and much experience were required in fixing the lead and so using it that it might not, through its great weight and softness, drag itself to pieces. If this were guarded against, the material was everlasting.

Alphamstone Church. During the progress of some restorations at Alphamstone Church, Essex, some interesting discoveries have been made. When the old plaster was scraped off, one of the chancel walls was found to be built, not of flint like the others, but of red bricks, with here and there white stones of varying shapes and sizes. One of these being extracted, it it was found, although somewhat damaged, to be beautifully moulded on the inner side. Large numbers of similar stones have been removed, and the work is still in actual progress. Practically all of the stones which originally formed the sedilia have been recovered, besides numbers of others which form portions of the tracery of what was apparently a fine window. Five small inscriptions have been found on these stones which, it is hoped, may be deciphered. Alphamstone Church is of great antiquity, and is of especial interest apart from these discoveries. It has an unusually fine chancel arch, which until the present work was begun was entirely covered with plaster.

Views and Reviews.

Builders' Bookkeeping.

In the thirty-seven pages comprising this modest little cloth-bound volume an attempt has been made to shed some light upon bookkeeping as adapted to "builders whose businesses are of modest dimensions." In so limited a space it is not possible to do much more than touch upon the subject, and the author professes no attempt to exhaust it, for he says, on p. 7: "It is not my idea to attempt to show in the following pages how a balance-sheet is drawn up"; and in his "conclusion" he adds: "Only the work up to rendering the accounts and keeping the cash book and petty cash books need be done by the builder, and arrangements made with an accountant . . . to continue the books from this point up to and including yearly accounts and balance-sheet."

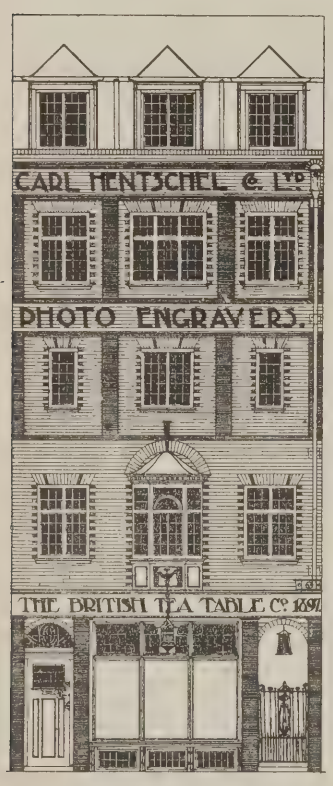
In the matter of prime-costing (p. 11) we feel bound to disagree, maintaining that it is neither necessary nor desirable to enter every little fiddling day-work job in the prime-cost book, and, further, object to the "ledger" form given to the day-work book (p. 14), preferring and recommending the "journal" or true form of day book. Whilst to a layman the use of the word "bill" when "account" is meant may be excusable (p. 16), it ought not to be so in the case of an accountant, especially a chartered accountant; and though admitting the desirability of being able to ascertain what part, if any, of a contract works out unremuneratively, we maintain that it cannot be done as recommended on p. 19; such a course would simply mean extra work without any compensating gain. To an accountant it may look simple enough; but a builder would scarcely need to have the weak point elucidated.

In drawing up a cash book (pp. 22 and 23) we should prefer the "folio" column placed on the other side of the column for "allowances," where it would be in closer proximity to the bulk of the figures to be posted, and would like to enquire why no "allowances" column is provided on the contra side. "Voucher No." is an unnecessary refinement, and the first paragraph on p. 24 is an amusing labouring of an insignificant detail. The petty cash book (pp. 26 and 27) is arranged on the tabular system, and though we admit its usefulness where many small items have to be dealt with, as saving a lot of dissecting, we do not appreciate its adoption for a little "one-horse" business; in fact, a book for petty cash seems altogether superfluous when simplicity is the guiding feature (*vide* preface.) In the example shown there are no fewer than four items out of the six tabulated that have no showing at all as "petty cash" items.

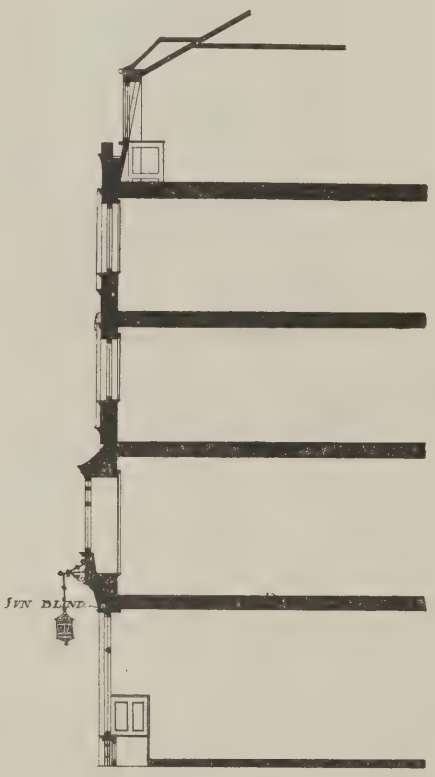
We agree that press copies should be taken of all accounts ("bills" again, p. 29) sent out, but disagree on the point of posting to the ledger from the press copy book. Should another edition become necessary we would counsel the author to show the ledger accounts (p. 30) completed by ruling off; and it is a little unfortunate that each of the three examples shown should, in consequence of typographical shortenings --figures dropped (similar disfigurement occurs elsewhere)—be rendered imperfect, thereby engendering confusion in the mind of the tyro. In order to render the examples complete, folio columns should be added; and we take exception, as being a case of bad accountancy, to the grouping in one item, on the credit side of the first example, of *two* items posted from the cash book. Very ordinary accountancy demands *direct* postings.

Whilst we, personally, would prefer to remould most of the tabular work and some of the details, we realise that such things are largely matters of individual taste rather than of correct form. The title-page indicates that among other matters dealt with is the "Erection of houses for speculation," but the author appears to have concluded to keep his fingers out of that pie. Perchance the omission of anything relative thereto is intended as a silent reminder to the "small builder" that he will best serve his own interests by doing likewise. If so, we agree. W. H. C. E.

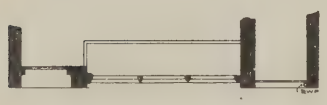
"Book-keeping for Builders, specially adapted for small businesses." London: Arthur E. Davies, Chartered Accountant, 18, Ironmonger Lane, E.C. Price 1s.



ELEVATION.



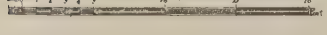
SECTION.



GROUND PLAN.



FIRST FLOOR PLAN.



Red bricks, four courses to the foot, with white joints. Columns, string-courses and window jambs of plain red roofing tiles, laid flat. Roofs covered with green slates. Letters of Messrs. Hentschel in wood, spiked to the brickwork. Window frames and sills of oak. Windows divided with stout lead cames, except those to basement and top floor, which have wood bars. Oriel covered on top with copper and the sides with cast lead.

DESIGN FOR THE FRONT OF NO. 182, FLEET STREET, LONDON; BY CHARLES B. SMITH.

GLASGOW TECHNICAL COLLEGE.

AT a meeting of the Glasgow and West of Scotland Technical College Architectural Craftsmen's Society held on Friday evening last (Mr. C. Ernest Monro, A.R.I.B.A, architect, in the chair) Mr. Bell, clerk of works, read a paper on "Roof Tiling." He described the different varieties and qualities of tiles, and showed a number of manufacturers' samples, which he examined for quality and finish, and stated the result of a test he had made for absorption of water. He called special attention to the shape of valley tiles, and criticised Glasgow slaters' methods of working flanks. He discussed the question of gauge and lap on run roofs of varying pitches, and suggested a specification clause to meet the difficulty. Mr. Davie, measurer, proposed a vote of thanks to Mr. Bell. The Society congratulated the president on his becoming an A.R.I.B.A.

"SPECIFICATION."

THE forthcoming issue of "Specification; No. 6," which will be ready by the middle of January, will be strictly limited to 5,000 copies. The former issues have been so extensively appreciated that the publishers have very few copies left, and most of these are only obtainable at double their original cost. There is every indication that the demand for "No. 6" will be equally great, and everyone desirous of securing a copy should order at once, either through his newsagent or direct to Effingham House, Arundel Street, Strand, W.C. "Specification" is undoubtedly one of the most useful volumes an architect or builder can possess, and the prospectus of the new issue shows that, in addition to the mass of technical details from which the publication takes its name, a number of new articles on construction and design will be given, thus making it still more useful to all connected with the building trades.

Diocletian's Palace at Spalato. — The Austrian Upper House has decided to take immediate steps to preserve the famous remains of Diocletian's Palace of Spalato.

Law Cases.

Re E. J. Cave.—The case of E. J. Cave, builder, Cannon Hill, Hampstead, who failed in May, 1900, with liabilities of over £500,000, came up on application for discharge on Thursday last in the Bankruptcy Court. The assets realised only £7,170, and a dividend of 6d. in the £ has been paid to the creditors. On the case being called Mr. Carrington asked for leave to withdraw the application. The Registrar allowed this on the debtor paying the costs of the day.

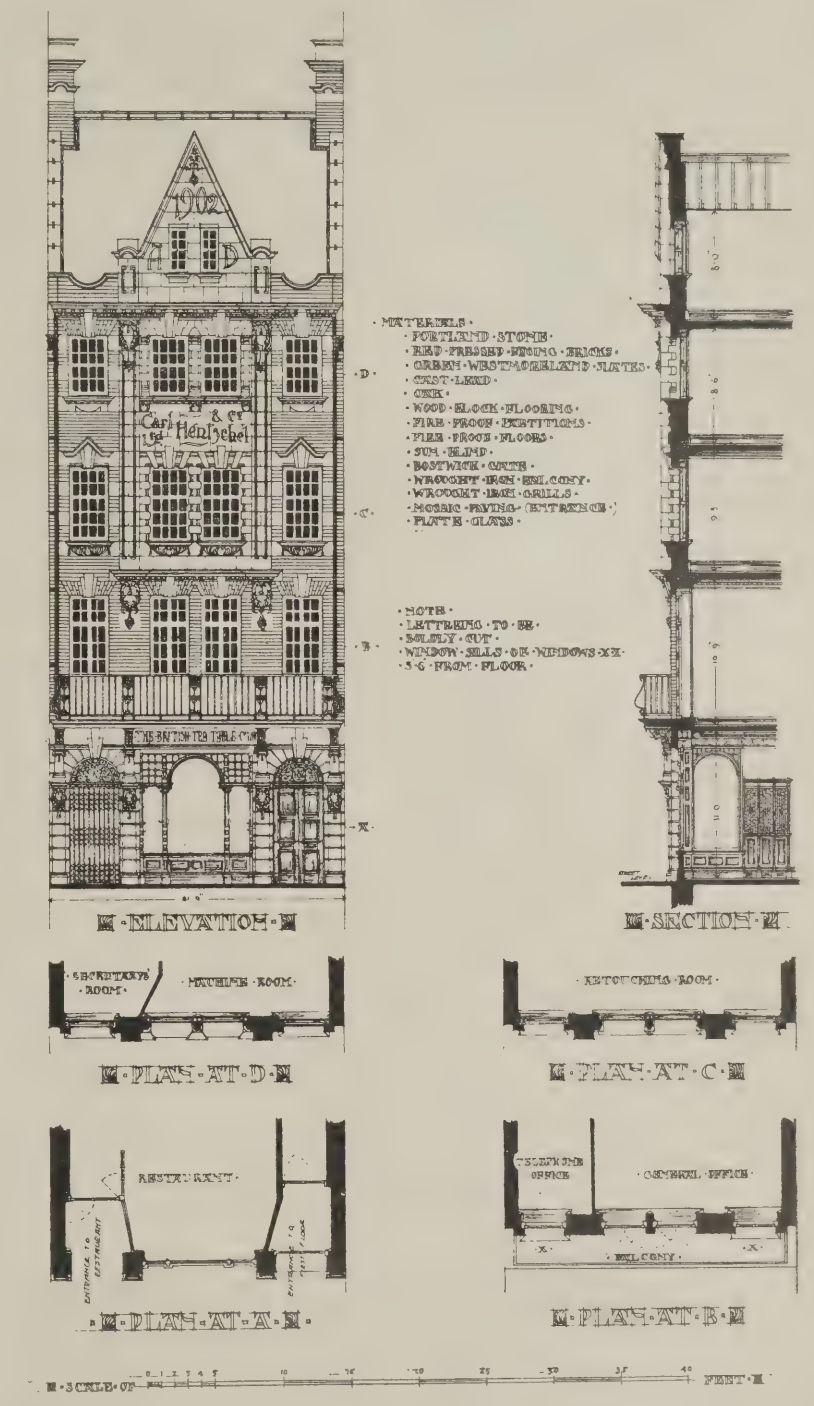
Re W. H. Gibbs.—On Thursday last in the Bankruptcy Court the public examination took place of W. H. Gibbs, builder, West Kensington. The debtor applied to pass on accounts showing gross liabilities £245,113, of which £21,650 are unsecured and assets £69,897. In examination by Mr. G. W. Chapman, official receiver, the debtor stated that in the spring of 1891, with a capital of £10,000, he started as a builder, land agent, surveyor, &c., at West Kensington Terrace as W. H. Gibbs & Co., acquired the freehold of an estate at West Kensington, built flats on it, and promoted a company, the Queen's Club Gardens Estate (Ltd.), with a capital of £200,000 and a debenture issue of £290,000. The consideration was £485,000, of which £385,000 was paid in cash and the balance in shares. He acted as managing director. He afterwards purchased land in Hammersmith, Bedford Park, and elsewhere, and in 1900, owing to the stoppage of advances, he attempted to form his business into a company, W. H. Gibbs & Co.'s Estates Ltd., but the scheme was not carried through, and since April last, owing to his serious illness, the business had been practically suspended. He attributed his failure to the unexpected stoppage of advances in 1900, to his serious illness and consequent closing of the business, and to his financial position having been previously weakened by heavy law costs, bonuses, and charges of financing amounting to over £80,000. The examination was concluded.

Important Cement Case.—The case of *Ingram & Clarke* v. *Holme & King, Ltd.* was heard for five days last week at the Liverpool Assizes. We regret that, owing to pressure of space, we are obliged to hold over the report of it till next week.

Another Workmen's Compensation Appeal Case.—The case of *Wagstaff* v. *Perks & Son* came before the Court of Appeal on Friday last. This was an appeal by the respondents as against a third party, from an award of the County-Court Judge Smyly, given at the Long Eaton County Court, who decided against the respondents in certain proceedings under the Workmen's Compensation Act. The respondents in the county court were contractors for the building of a house at Acton Road, Long Eaton, and were found liable to the applicant for compensation in respect of injuries he sustained while engaged in plastering on the building. The respondents claimed indemnity from Handel Firth, the sub-contractor for the plastering work; but the learned county-court judge held that they had no case against the sub-contractor. The contractors appealed.—The Master of the Rolls, in giving judgment, said the actual point to be decided was whether the sub-contractor, against whom indemnity was sought, could be held to be the "undertaker" within the meaning of the Act. Having referred to previous decisions on the point, he came to the conclusion that the sub-contractor in this case was himself a person liable to the workmen for compensation. The appeal, accordingly, would have to be allowed. Lords Justice Romer and Mathew concurred.

Notices under the Public Health Act.—At the Lambeth Police Court on Friday last William Moore, the tenant of a house in Fleming Road, Walworth, was summoned by the Southwark Borough Council for wilfully refusing to disclose the name and address of the owner of the premises. The proceedings were taken under section 116, sub-section 3, of the Public Health Act, under which he was liable to a fine not exceeding £5. Mr. W. G. Selby, sanitary inspector, stated that he served notices on the defendant, and as the work required was not done he asked for the name and address of the owner of the premises, but was unable to obtain it from the defendant.—The magistrate fined the defendant 20s. and 2s. costs.

The Recovery of St. Bartholomew's Cloisters.—At the Consistory Court held at the Wellington Chapel of St. Paul's Cathedral on Friday last the vestry clerk of St. Bartholomew the Great applied for the sanction to an agreement for the purchase of land and premises which comprise the ancient cloisters of the church. The money to defray the cost was being raised by public subscriptions; £250 was in hand, and £50 had been paid on signing the contract.—The learned Chancellor, in giving judgment, said it appeared that the church had been restored within the last few years at the cost of £33,000, which had been subscribed by the parishioners and the public. On the south side of the church a stable had been built 7ft. above the church, and in that stable were curious ancient arches, and it was proposed to purchase the stable with a view to restore to the church this property. The purchase of the stable would prevent the erection of any building against the tower of the church. That, of course, was of great importance to the church, and they would be able to prevent any building being erected overlooking the churchyard for a distance of 30ft.—The faculty was granted.



DESIGN FOR THE FRONT OF NO. 182, FLEET STREET, LONDON; BY EDWARD CRATNEY.

Correspondence.

"Belfast Bond."

To the Editor of THE BUILDERS' JOURNAL.

GLASGOW.

SIR,—In the second article on "Building Construction" published in your issue for November 26th, on p. 244 the writer describes a face bond of brickwork which he proposes should be called "Belfast bond." What he describes is Scotch bond, and it has always been known by that name. This bond is used in nearly all brickwork carried out in Glasgow and many other parts of Scotland. I may add that on p. 15 of Volume II. of Rivington's Notes it is referred to as Scotch bond.—Yours truly,

CHARLES GOURLAY.

What Professor Gourlay points out is perfectly familiar to me. The bond in question appeared to be a kind of outcast, and the names Scotch or garden-wall bond appeared to me to be applied in contempt of it. It is not suggested that the term "Scotch" is one of contempt, but there is such good stone available in the neighbourhood of Glasgow and Edinburgh that these are not "brick-built" towns in the same degree as Belfast is a brick-built town; and it might be supposed that Scotland was so little interested in facing brickwork as to give no good example of an original bond. In Belfast I find this bond boldly displayed and with *good effect* in the *face work* of important buildings—possibly the same may have been done in Glasgow, but I have not observed it. I am told that in some parts the surveyors or other authoritative persons will not permit its use. I hold no brief in favour of this particular arrangement over English or Flemish bonds; but the people of Glasgow and Belfast are fairly intelligent, and their methods deserve respectful consideration. In these articles it is attempted to impress students with the value of observing what is done in actual practice, and the preference to this bond is made in this spirit: possibly also with some irrepressible contempt for what may be called the "armchair" brick instructions of certain books.—OUR SPECIAL CONTRIBUTOR.

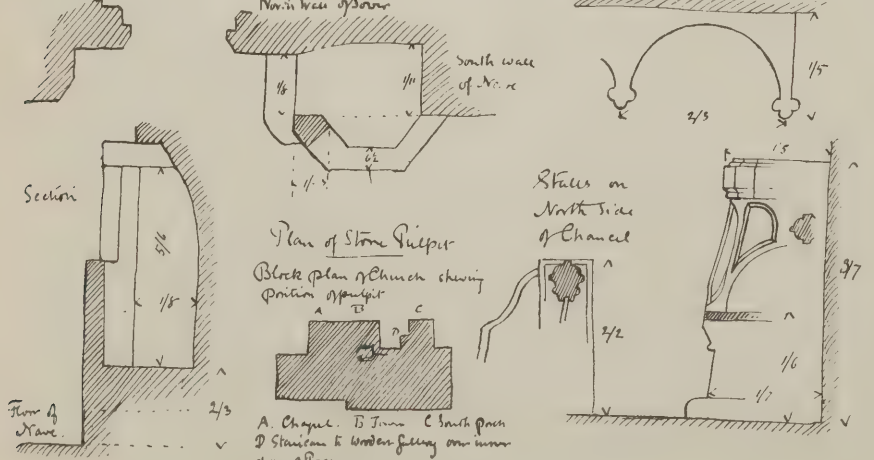
Open-Air Pulpits.

To the Editor of THE BUILDERS' JOURNAL.

PEMBRIDGE.

SIR,—When reading Mr. Harry Hems's reply in regard to open-air pulpits on p. 180 of your issue for October 29th it occurred to me that a notice of the curious and very roughly-constructed wall-pulpit in the church of SS. Peter and Paul at Old Walton, or Walton-in-Gordano, near Clevedon, might be of interest. The church—Early English with characteristic Somersetshire Perpendicular additions—consists of nave and chancel, with south porch and a tower at the south-east end of the nave opening both into the nave and also into a small chapel on the south side of the chancel. The northern face of the tower is not in line with the inside face of the wall of nave, but rather with the outside face, and it is in the angle thus formed that the pulpit is placed. I regret that I only made (several years ago) a very rough plan and section with guess-work measurements. The stalls of the church also are interesting (the measurements given on the sketch below are approximate only).—Yours truly,

R. A. DAVIS.



WALTON-IN-GORDANO CHURCH, SOMERSET.

Enquiries Answered.

The services of a large staff of experts are at the disposal of readers who require information on architectural, constructional or legal matters. Questions should in all cases be addressed to the Editor. The querist's name and address must always be given, not necessarily for publication.

Measuring-in Windows.

LONDON, S.W.—POINTER writes: "I have been pointing a brick building by the square yard. There are several small windows in it averaging 4ft. by 7ft.; I intend to measure them in owing to the extra trouble of pointing around them. Am I justified in doing so?"

You would hardly be justified under your contract in measuring-in the windows. A price given per yd. super. would be generally considered to cover an average number of openings to be measured nett—adding the reveals—although sometimes a separate price is mentioned for narrow widths to reveals, string-courses and other similar work. If the windows are very small and numerous there might be some justification for the course you propose. Without further particulars as to the particular work and the conditions under which the price was quoted it is impossible to give a more definite reply.

W. E. D.

Squaring Dimensions in Quantities.

FOLKESTONE.—J. P. writes: "Which is the most rapid method employed by quantity surveyors in squaring such dimensions as 3ft. 6in. by 4ft. 6in., or 3ft. 6¼in. by 4ft. 6¾in.? Is the use of the slide-rule advised? Please name a good work on mensuration."

In squaring dimensions similar to those given, a quantity surveyor would *mentally* use fractions, *e.g.*, 3ft. 6in. by 4ft. 6in. would be mentally 3ft. 6in. × 4½. In the case of 3ft. 6¼in. by 4ft. 6¾in. the same rule would apply, except that the ¾ would be again divided by 12. In duodecimals this simply means shifting the figures on a point. Example:—

ft.	in.	‴				
3	6	3				
4	6	9				
14	1	0				
1	9	1	6		= ½ top line (for 6in.)	
	1	9	1	6	= ½ top line divided by 12 - -	for 9‴ ¾ divid by 12
	10	6	9		= ¼ top line divided by 12 - -	
16	0	9	2	3		

In practice so many of these examp occur that with very little experience various short cuts to a result will be obvic at a first glance, *e.g.*, experience would pla the dimensions (for squaring) in the reve order.

ft.	in.	‴				
4	6	9				
3	6	3				
13	8	3				
2	3	4	6		= ½ top line (for 6in.)	
	1	1	8	3	= ¼ top line (or ½ previo line) divided by 12 (f 3‴ or ¼ divided 12)	
16	0	9	2	3		

giving one line less for working. The slid rule would be of little use in practice. An office boy with a few months' experienc would work out almost any dimensions i less time than the slide-rule could be put i operation. Almost any advanced arithmeti book would answer your purpose. An hou with a surveyor's junior assistant would b of greater service in explaining the metho adopted in a surveyor's office. W. E. D.

Half-Brick Work.

KIRKLEY.—J. L. writes: "Mr. Davis, i his 'Quantities,' gives the following dimen sions regarding the half-brick work:—

	ft.	in.
	13	8
	10	4
	13	0
	37	0
less crossings 3/1'1 =	3	3
	3	11
	33	1

—33'1 as trench measurement. The sam measurement is repeated for footings an walls. Should not the wall measurement b as figured on the accompanying plan (no reproduced)—37ft., and the footings the sam minus the projection of footings of the wall they intersect?"

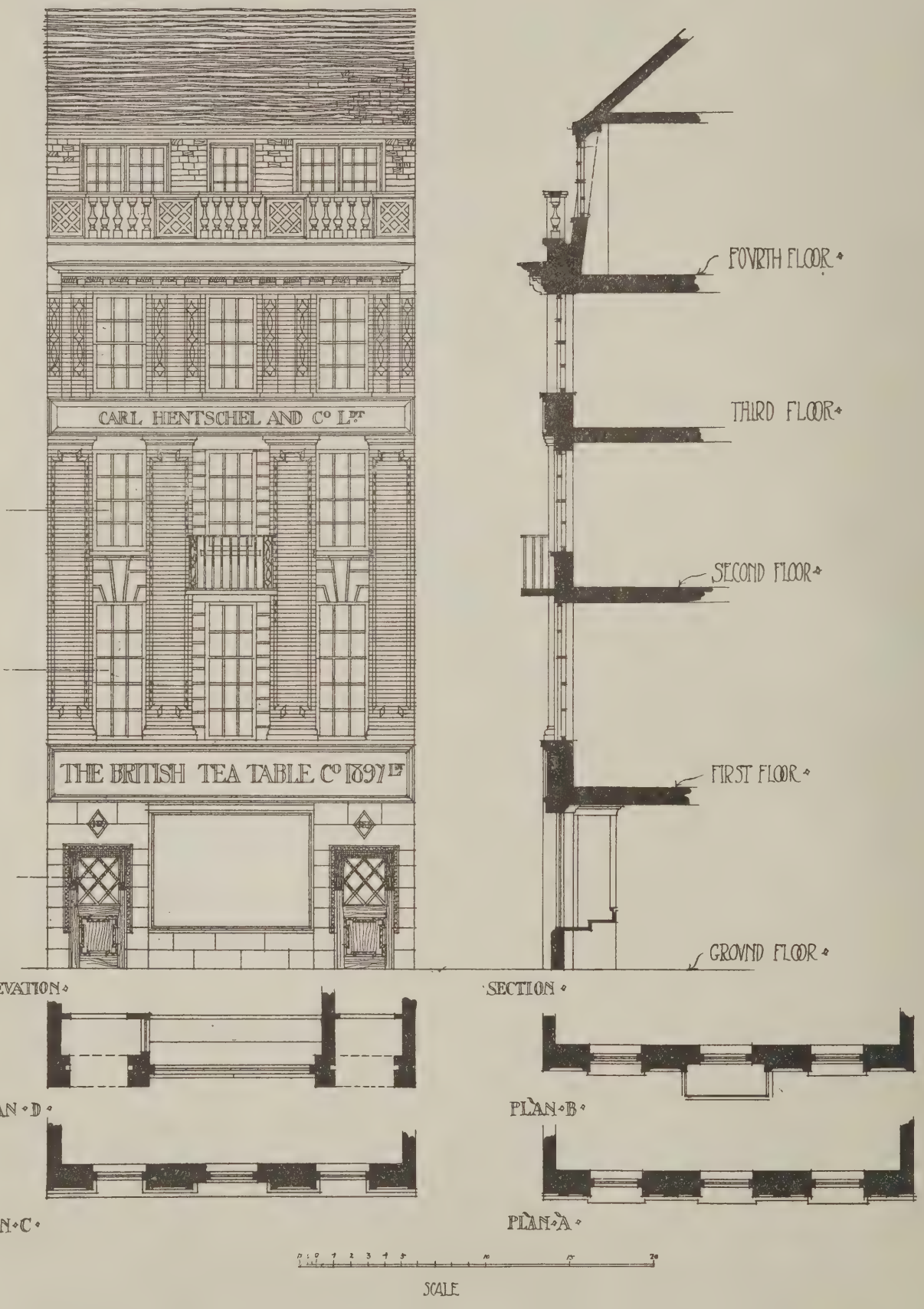
Your contention is correct. In the second edition of this work you will find the corrected dimensions. W. E. D.

Buildings to Measure around Dumfries and Carlisle.

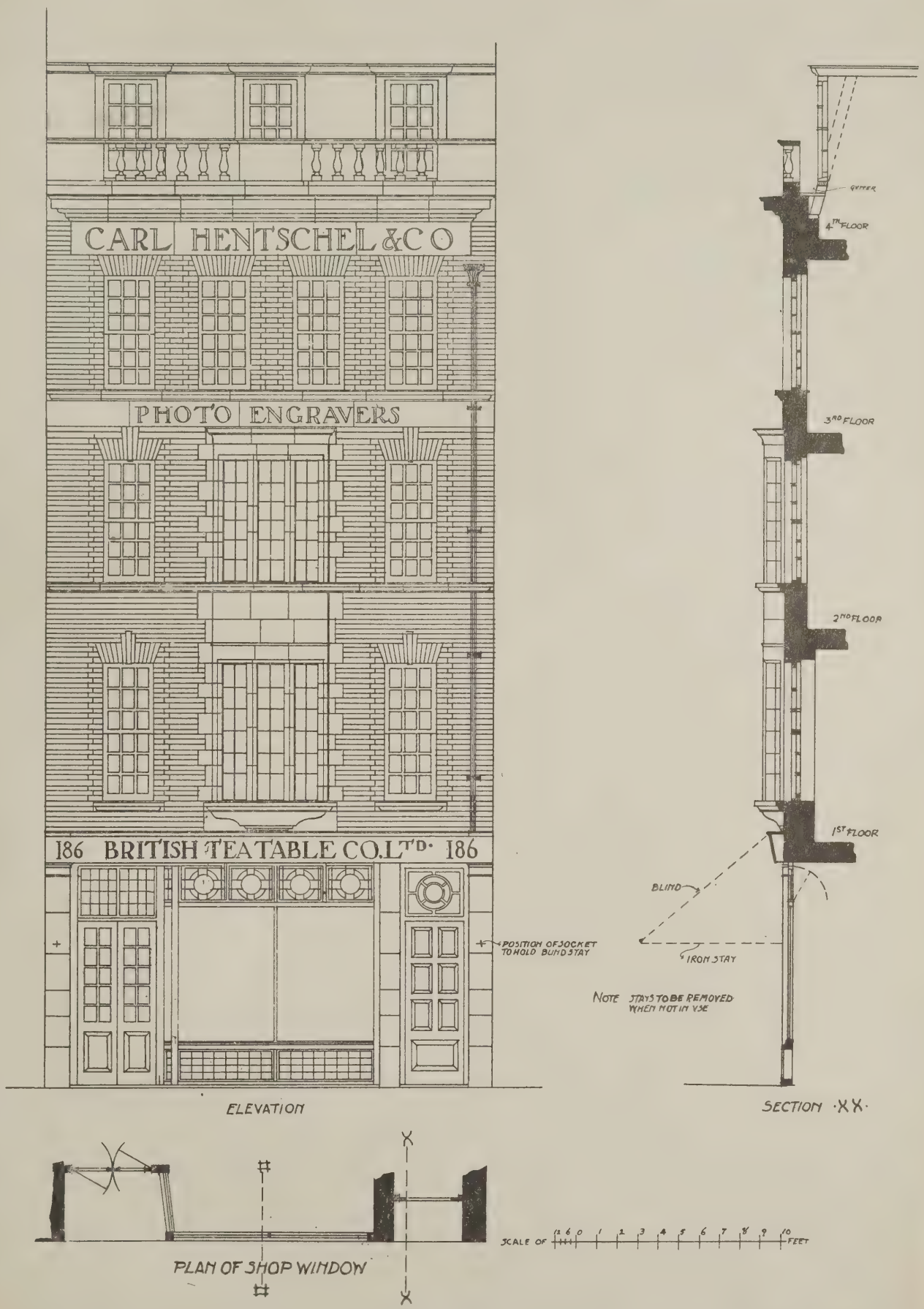
SOUTHPORT.—STUDENT writes: "Please give me particulars of one or two buildings in Dumfries and Carlisle which are suitable to sketch and study for the South Kensington examination in architecture."

The border country between England and Scotland contains little that is worth studying for the purpose named. Carlisle Cathedral is the only building of importance. It was commenced in 1092, but only the choir was then built, and this was pulled down and reconstructed in the thirteenth century. Still the south transept, except the clearstory and the pier arches of the nave, are Early Norman work, built between 1101 and 1120, and the triforium and clearstory of the nave and the clearstory of the south transept are rather

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SECOND-PREMIATED DESIGN. BY A. R. BARKER.



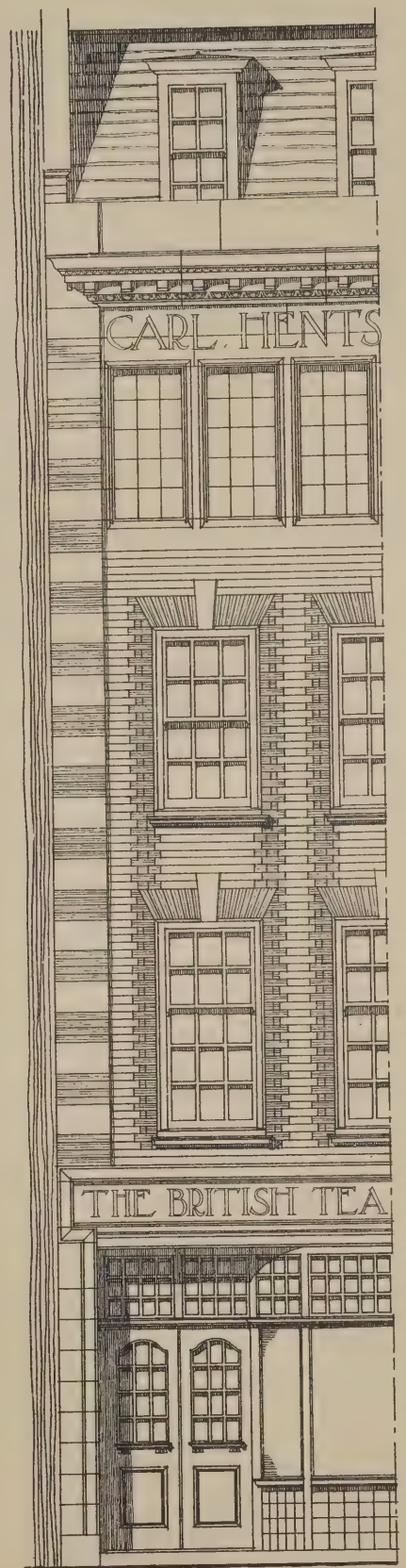
THIRD-PREMIATED DESIGN. BY ALLAN M. C. YOUNG.

NG THE FRONT OF No. 182, FLEET STREET, LONDON.

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Supplement to
THE BUILDERS' JOURNAL AND ARCHITECTURAL RECORD,
Wednesday, December 17th, 1902.

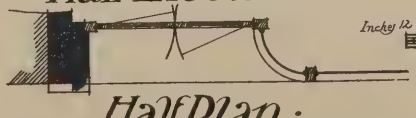




Materials:
Roof covered with Westmoreland Slates.
Stone Portland.
Bricks. Cherry Red colour, with Orange Red Quoins; sand faced.
Girder over Shop Front Copper plated with brass letters screwed on.
Letters on stonework are bronze.
Shop Front joinery oiled teak.

Half Elevation:

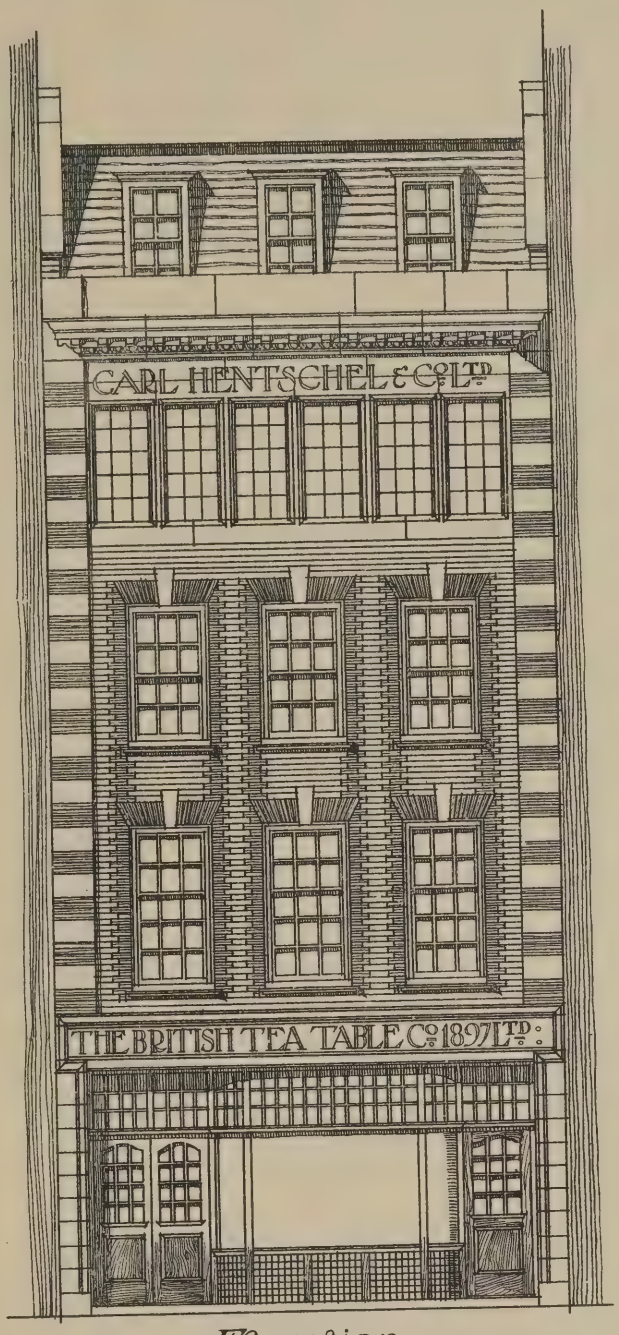
Section:



Inches 12 0 1 2 3 4 5 10 15 Feet:

Half Plan:

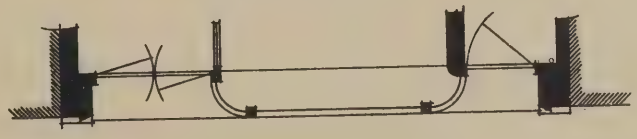
Supplement to
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Wednesday, December 17th, 1902.



Elevation:



Section:



Ground Floor Plan:



First Floor Plan:

Scale of 5 4 3 2 1 0 5 10 15 20 25 30 35 *Feet:*

"PHOTO-LITHO." R. J. EVERETT & SONS, 58 LUDGATE HILL, E.C.

THE FRONT OF No. 182, FLEET STREET, LONDON.

ALGERNON HALLAM.

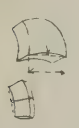
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late Norman. A great fire occurred in 1292, when the east end was again destroyed. The vaulted roofs of the aisles preserved the outer walls from injury, but the falling timbers of the roof damaged the piers so seriously that they had to be rebuilt. This was skilfully done without disturbing the arches or vaults. Thus Early English arches and vaults are now supported by Decorated piers! The eastern wall was an addition, and the magnificent east window, generally considered to be the finest in England, belongs to the middle of the fourteenth century. The north transept was rebuilt about 1401 in the Perpendicular style. Thus the cathedral is an excellent one in which to study all periods of English Gothic architecture. G. A. T. M.

Measuring Stonework in Dome: Covering Dome with Lead.

LONDON, N.—A. J. C. writes: "(1) What is the fairest way to measure the amount of stonework in a semicircular dome which would cover all the waste that arises? (2) If of wood or steel, what would be the amount of lead necessary to cover the area, assuming rolls at the joints?"

(1) To properly measure the amount of stonework in a dome it is necessary that the jointing should be distinctly shown. Given this, each stone should be measured separately, care being taken to get the extreme dimensions each way. The accompanying sketches (purposely exaggerated) will explain,



sketch A showing the surface measurement and sketch B the extra thickness of curvature on the face. (2) In the case of a dome with simple vertical rolls from eaves to finial, to arrive at the amount of lead covering, take the average horizontal girth between the rolls (arrived at by taking a number of dimensions at regular intervals on the vertical girth), add the lead for the rolls as usual, and square by the vertical girth.

W. E. D.

Details of Gothic Vaulting.

EDINBURGH.—G. M. writes: "(1) An architect designs a church with some Gothic vaulting in it. Is it usual to give the contractor ½in. and full-size details, showing each stone, or would the architect merely give him sections of ribs, the height, &c., and let him work it out himself? (2) Please explain how to obtain the section at the springing on the abacus of the cap? (3) What is a good book on Gothic vaults?"

(1) Vaults are set out to ½in. scale and mouldings full size, similarly to the centre-plate in our issue for October 31st last. (2) See article on p. 506 of our issue for July 31st 1901. (3) Purchase's "Practical Masonry," and articles in Viollet-le-Duc's "Dictionnaire."

Glasgow Municipal Buildings: The Stone, its Repair, &c.

LONDON, N.—HIGHGATE writes: (1) How long have the Glasgow Municipal Buildings been built? (2) What is the facing stone? (3) Why does it require to be renovated? (4) What repairs are being done, and is any stone preservative being used? Who was the architect?"

(1) The Glasgow Municipal Buildings were opened in 1888, having been erected at a cost of about £500,000. (2) The stone used in their construction was obtained from the celebrated Bannockburn quarries, which stone ordinarily weathers excellently, but the quarry from which the stone in this case was taken was a newly opened one, and only the very rough test of seeing the effect of the stone being exposed for one year in the builder's yard was made. (3) The Glasgow atmosphere has decayed the stone extensively. (4) Messrs. Alexander Muir & Sons are engaged in treating it with a silicate solution. (5) The architect was the late William Young, F.R.I.B.A., the designer of the new War Office Buildings in Whitehall.

Duties of Clerks of Works.

LISCARD.—G. B. writes: "Please recommend a good book of reference suitable for a clerk of works—not too expensive."

"The Conduct of Building Work and the Duties of a Clerk of Works," by J. Leaning, price 2s. 6d. (B. T. Batsford, 94, High Holborn, W.C.).

Analysing Mortar: Architectural Lantern Slides.

BILSTON.—SUBSCRIBER writes: "(1) Kindly give me a simple method of analysing mortar to find the quantity of sand and lime in order to test it with respect to conforming to specification supplied. (2) From what firm can I hire architectural lantern slides?"

(1) Dry the sample of mortar thoroughly by heat, and weigh. Then dissolve the lime by means of nitric or hydrochloric acids, wash clean on a filter, dry residue and weigh again. The result is the weight of sand, and the loss of weight (found by deducting weight of residue from weight of sample) is the weight of lime. This only roughly gives the weight of lime, to tell which accurately the solution must be preserved and the water distilled off and the residue analysed and weighed. (2) Newton & Co., Fleet Street, E.C.

Claim for Extras.

FLEET.—INDICE writes: "(1) What proceedings can a builder take against an architect, or his client, to compel payment for extras that are deemed excessive? (2) How can an architect protect his client in such case when a contract has been entered into in which the builder agrees to abide by the architect's valuation of such extra work? (3) Is an unstamped tender for proposed additional work sufficient evidence of a contract?"

(1) He can sue him for the amount, the court of law he has to go to depending upon the amount sued for. He of course has to prove the amount of the extras, which would be difficult. (2) An architect cannot avoid or prevent his client being sued, though the clause would probably get the case decided against him, when the only course would be for him to proceed against the architect for malfeasance in his acting as a quasi-arbitrator. (3) The tender should have been stamped, but this can still be done if it is intended to use it as evidence.

Hearth Supports.

LINCS.—G. C. P. writes: "Who are the makers of hearth supports shown by the accompanying sketch (not reproduced)?"

Messrs. Young & Morten, Ltd., of Caledonian Works, Stratford, E., would probably be able to supply you.

Deductions for Defective Brickwork.

CAMBERLEY.—F. C. W. writes: "I have had charge of the erection of a £2,600 house, and have complained many times about the brickwork, which has been very badly executed. The house is now practically completed. I refuse to approve the face brickwork, and my friend, the owner, declines to accept it unless a substantial deduction is made from the moneys due to the contractor. What sum would be a fair allowance to demand in this case, and would it be reckoned at so much per super. yd. for defective facework? I may add that the usual certificates have been granted from time to time, but there is a clause in the specification to the effect that the certificate of the surveyor is not to protect the contractor."

It is difficult without seeing the work and the site, knowing the terms of the lease, &c. to value the amount that should be deducted. A valuer should be employed. The certificates should not have been granted until the work was altered or the deductions agreed to.

Saltpetering and Cleaning of Brickwork.

LISCARD writes: "(1) What is the best way to prevent the appearance and falling of white from acids in internally-faced brickwork? (2) Are spirits of salts diluted with water injurious when used for cleaning down brickwork?"

(1) The saltpetering often comes from the bricks themselves, when the only remedy is to get the brick manufacturer to avoid the use of salt or other sodium compounds, or if they are in the clay to some other use. The best plan would be to use another brick. It generally comes from the cement or mortar. This may be bad in composition, but it is generally due to the composition of the water used. Salt water is a fruitful cause. Ashes which contain potash also cause efflorescence. (2) With a brick vitrified only on the face, and not throughout as it should be, the acid may destroy the skin, when the soft interior will be liable to rapidly decay in a strong atmosphere, such as at the seaside or in a manufacturing town. With a good brick, however, the acid only just removes the saltpetre from the face with a little of the latter and does no harm.

Articles.

LEGAL writes: "A youth is articled to an architect at the age of eighteen. Do his indentures hold good after he is twenty-one years old?"

Articles and deeds of apprenticeship do not hold good if they are repudiated on the day you become twenty-one years of age, but if you go over this time and allow them to continue you tacitly agree and are bound by them. We would not advise you to be so foolish as to take this action.

Sketching Modern Work.

STUDENT writes: "Is it a breach of professional etiquette ('pirating') to sketch work by living architects? Kindly explain fully the method of screw-slotting a board in two widths."

(1) Sketching is quite legitimate, but copyism in practice is most reprehensible. (2) See Mitchell's "Building Construction: First Stage."

Adding Bedrooms in the Roof of a House.

LONDON, N.—A. T. B. writes: "In an ordinary detached villa, two storeys high, I wish to construct two additional bedrooms in the roof with dormer windows. The outside walls are only 9in. thick at present. Will the alteration necessitate making them a brick and a half thick up to the level of the first floor, or can I leave them as they at present stand?"

Yes, you will need to increase the thickness of your walls as stated.

Masters and Men.

Strike of Mosaic Workers.—Out of the 150 members of the Italian Mosaic Workers' Society eighty-five are on strike, and an appeal is being made to other trade unions for financial support. The eighty-five men on strike were all employed by one firm. They came out in a body when their employers told them that all those wishing to remain at work must abandon the society. For a fortnight they have each received £1 a week strike pay. Now Mr. D. Lupieri, the secretary, notifies that "unless we are helped by our fellow trade unions of England the strike will end shortly, for not being able to support our members, we will be compelled to let the said firm have its own way."

R.I.B.A.

THE PALACE OF KNOSSOS.

A MEETING of the Royal Institute of British Architects was held on Monday evening, the chair being occupied by the president, Mr. Aston Webb, A.R.A.

Dr. Arthur J. Evans, F.R.S., F.S.A., read a paper on "The Minóan Palace of Knossos, Crete."

Reviewing the construction of the palace and its general design and distribution, Dr. Evans stated that in outline the palace very nearly approached a square form with an oblong central court, and apparently four main entrances, roughly answering to the points of the compass. To the west were the remains of a paved court with altar bases and raised causeways. Along the base of the palace wall was a raised plinth, which seemed also to have been used as a seat, and there was every indication that this was the principal gathering place of the people—the Agora—where king and citizens would most naturally have met. Here was the state entrance, a lofty porch flanked by fresco paintings, to which halls formed a principal feature, and giving access to two imposing entrances. One of these opened into a magnificent corridor, the other to a chamber at whose portal one might well believe the king sat in judgment before the assembled people in the Agoro beyond.

The entrance corridor contained remains of a great processional fresco.

Dr. Evans then went on to describe the several entrances to the palace, the propylæum, the state rooms, the throne room, the domestic offices and numerous other parts of the great building—of which descriptions have already been published in these columns, and illustrations of some of which were given in the article on "A Visit to Knossos" published in THE BUILDERS' JOURNAL for September 17th last.

Dealing with the general design and construction of the building, Dr. Evans brought out some remarkable contrasts presented by the palace of Knossos when compared with the palaces of Tiryns and Mycenæ, showing that in the former, unlike the Mycenæan palaces, everything was arranged according to the most elaborate planning, the whole outline being laid down in definite lines without regard to the site—or, rather, a site seemed to have been chosen which allowed free scope of action to architect and engineer.

Another point dwelt on was the striking resemblance in plan between the Knossos building and the palace of Phæstos—among known buildings the only real parallel. Summing up, Dr. Evans said that it was impossible, in view of the fundamental arrangement revealed by those buildings—pointing in both cases to a more or less square building with central court crossed at right angles by two main lines of approach, not to recall the familiar features of the Roman camp, and its still more remote prototype as traced by Chierici and Pigorini in the prehistoric pile-settlement, the "Terremare" of the Po Valley.

The high level of civilisation reached in Minóan Knossos by the date of the foundation of the existing palace, so conspicuous alike in its architecture and decoration, points itself to long centuries of earlier development. It is not surprising, therefore, to find beneath the later foundations the remains of a still earlier palace, the lines of which seem partly to have been followed in the later work. The Thirteenth Dynasty monuments—not later than 2100 B.C.—found beneath the pavement of the central court, seem to belong to this earlier building, and a series of exquisite painted vases of eggshell fabric, and design and colouring never certainly surpassed, point, together with other relics, to an intimate acquaintance with Twelfth Dynasty designs, going back therefore to about 2800 B.C. But beyond this, again, we have evidence of still earlier princely occupation, and fragments of imported Egyptian vase of diorite obsidian that take us well back into the Fourth Millennium before our era. And still before this, underlying the whole hill-top on which the palace stands, is a vast Neolithic settlement replete with stone weapons and implements and primitive pottery, and idols, as were later supplied by ancient intercourse with Egypt, which carries back the antiquity of the site beyond the limits of such record.

The lecture was especially interesting for the very remarkable illustrations—many of them coloured—which were thrown on the screen.

A vote of thanks was proposed to Dr. Evans by Mr. Macmillan, who said that architects as well as archæologists might devote themselves to the great palace, might try their hands at its reconstruction, and take what hints they could from it.

Mr. Phené Spiers seconded the vote. The farther back we went, he said, the finer seemed the examples—it was the same in Egypt as in Crete. The plan of the palace was remarkable, and if one had seen it without any previous knowledge, it might be taken as one of the palaces of the Cæsars; while its regularity was quite unlike what we might expect in so early a building.

A number of slides showing details of the plaster decorations and constructional parts of the palace were next described by Mr. T. D. Fyfe, who, with Dr. Duncan Mackenzie, has been co-worker with Dr. Evans on the site.

Mr. Hogarth supported the vote of thanks. In doing so he stated that very extensive remains of mud bricks had been found in Eastern Greece—bricks about 2ft. square and 4in. thick—and that many of the walls were built of material quite unworthy of the enrichments given to them. But he had found walls so well laid that they still stood plumb and secure. He mentioned the curious fact that neither the palaces nor the towns on the island of Crete were fortified.

Dr. Evans announced that the several plans, photographs, &c., of the excavations would be included in the Royal Academy Winter Exhibition to be opened during next month.

The Isolation Hospital, Pontardawe, has been supplied by Messrs. E. H. Shorland & Brother, of Manchester, with their patent Manchester stoves with descending smoke flues.

All Saints' Church, Lockerbie, N.B., is being fitted with the well-known "small tube" hot-water heating apparatus by Messrs. John King, Ltd., engineers, Liverpool, who are employing their latest improved economical coil-heater.

A Clock for the Sikhs.—On the occasion of his visit to Amritsar more than two years ago Lord Curzon noticed the unworthy appearance of the clock of the Golden Temple, the chief shrine of the Sikhs, and offered to present one more in keeping with the surroundings. The clock has been made in England, according to designs furnished by the Viceroy.

Grove Vale, Camberwell, Housing Scheme.—The Borough Council of Camberwell have purchased the Grove Vale Estate of eight acres for the sum of £8,000, for erecting workmen's houses. The roads have all been made up, and the footpaths temporarily laid with tar-paving. The new roads will give frontages to eighty-five houses, which will contain about 170 tenements for the working classes.

New Patents.

These patents are open to opposition until January 26th.

1901.—Heating.—24,120. J. G. GRIMSLEY, Halford Street, Leicester. The hot water from the jackets of gas- and oil-engine cylinders is diverted into the heating system instead of being wasted, the flow and return pipes being connected with the return and supply pipes between the water tank and the cylinder jacket.

Baths.—25,814. T. W. TWYFORD, Cliffe Vale Pottery, Hanley. The sides (and the ends perhaps also) are bulged so that the bath will hold more water and the overhanging top edges prevent splashing, and the back is curved to suit the form of the body and provide a comfortable support for the bather.

1902.—Cement Kilns.—241. H. HAUENSCHILD, 39, Reinickendorferstrasse 2B, Berlin. The centre of the kiln is filled with the material to be burnt and the fuel is charged around it and in passages formed in it. It is claimed that the burning is thus more effectual and economical.

Flushing Syphons for Sewage.—665. H. L. DOULTON, Lambeth Sanitary Engineering Works, and R. J. PLEACE, 9, Vernon Road, Clapham, London, S.W. A chamber is introduced for trapping a ∩ form of pipe until the syphonic discharge is practically broken, when the chamber is emptied and the action stopped by air coming through the ∩ pipe.

Hods,—3,283. R. LOUDON, Ravenshall, Cleland, Lanarkshire. A V-frame of metal is employed to which the sides of the hod and the handle are attached. Any part that is broken can thus be easily renewed. A supporting stay is provided to strengthen the top.

The following specifications will be published to-morrow, and will be open to opposition until February 3rd. A summary of the more important of them will be given next week. The names in italics are those of communicators of inventions.

1901.—24,119, CLEMETSON, parquetry. 24,122, THOMPSON *(Beveridge)*, bolts for French windows, shutters, &c. 24,344, CORBETT, removal of deposits in sewers and other pipes. 24,673, PRIOR, window fastener. 26,252, TRENDEL, taps for water-heating gas stoves. 26,325, VON ROETEL, elevators. 26,410, LEASK, refuse destructors.

1902.—125, TEBBS, machinery for cutting mouldings in stone. 299, THOMPSON, kitchen range boilers. 533, ROSE, coupling appliance for closet-pans and their flushing pipes. 1,714, PEARSON, discharge-controlling devices for hose-pipes. 1,933, COOMBS, ventilating fans. 2,297, HOEGLAUER, baths. 4,308, TUKE, separators for brick cutting-tables. 6,170, HOOPER, fastenings for doors, windows, &c. 6,502, KERKOW, impregnating pasteboard for roofing and other purposes. 6,851, HAM & SPINKS, sewer ventilating shafts. 12,687, CADMAN, socket joints for earthenware and other pipes. 15,805, HADDAN *(American Universal Mill Co.)*, apparatus for rolling beams, girders, &c. 16,996, LAKE *(Warren)*, preparation of materials for street pavements. 19,147, FADER, attaching knobs or handles to latch stems. 20,675, DUMAS, piles. 20,899, BLACKA, pointing tools. 23,148, PARKER, swinging window hinges. 23,244, THOMPSON *(Bürstenfabrik Erlangen A.-G. vorm. Emil Kränzlein)*, fixing bristles in brushes.

A Church at Nevin is to be erected. Mr. P. Shearson Gregory, M.S.A., is the architect, and Mr. Evan Jones, Plas Dolydd, the builder.

BUILDING CONSTRUCTION.—IV.

[By Our Special Contributor.]

(*Continued from p. 269, No. 408.*)

IN proportioning joists a man is disposed to follow what he sees, or he may consult a book. The student who has mastered the elementary mechanics involved may consult books; he may follow what he sees others do; but he should also apply simple calculation occasionally. We know that the strength of a joist is proportional to its breadth and to the square of its depth. Why should we not make joists very deep and very thin? An additional reason for depth of joist is that stiffness is proportional to the cube of the depth. There is a limit to thinness of joists; we have to nail our flooring down to them, and they must have thickness to hold the flooring brads properly; besides, if we make our joists very deep, we have an extra quantity of wall to build: our house will be higher with deep joists for a given height of ceiling. Joists are frequently 1½in. thick, but this is too thin; 2in. thick, with trimmers 2in. thick, is usual, and this appears to be a fair thickness. A floor ought to be made strong enough to carry the biggest crowd of people that can come upon it, and it should be stiff enough to save the ceiling beneath from cracking and injury. Assume the joists to be spaced 12in. apart (centre to centre); assume a distributed load of 1¼ cwt. per ft. super. (see particularly that throughout the middle-third of the length of every joist the fibre is straight and sound, and that there are no knots or any other thing to weaken the joist). The bending moment in the centre is 37·5 approximately; allowing the load to be distributed over 15ft. and that the distance between bearings is 16ft. B.M. $= k\,\frac{bd^2}{6}$

$$37{\cdot}5 = \frac{1440 \times \frac{1}{6} \times d^2}{6} = 40d^2,$$

from which d is found to be = ·96ft. The depth thus found is 1ft., and the maximum stresses on the outside fibres are 1,440 cwt. per sq. ft. (sectional area).

$$\text{Deflection} = \frac{5\,wl^3}{384\,E\,I}$$

(see article, November 20th, 1901, section 41)

$$= \frac{5 \times 18{\cdot}75 \times 16^3}{384 \times \frac{1444000}{112} \times 144 \times \frac{1}{72}}$$

$$= \frac{112 \times 72 \times 5 \times 18{\cdot}75 \times 16^3}{384 \times 1444000 \times 144}$$

= ·04ft., say ½in. (E is usually given in lbs. inch, here taken at 1,444,000; the work above converts to cwts. foot.)

For these calculations it is necessary to refer to two tables, viz., (1) a table of safe stresses for materials, and (2) a table of moduli of elasticity: such tables ought to be familiar to engineers and architects. These tables are the result of experiments. In every practical calculation it will be found that account must be taken of want of homogeneity in material, as well as of many other uncertain circumstances, and provision should be made for the maximum stresses as far as we can foresee them. Students should know that E for fir timber is about 1,400,000 (lbs. sq. in.): average for iron and steel, 30,000,000; but that very varying numbers are given by different experimenters. Also that wrought-iron will safely bear stresses of 5 tons to 6 tons per sq. in., fir timber about half a ton per sq. in. Students are recommended to make easy experiments for themselves: variously loading pieces of wood 1in. by 1in. in cross-section, noting the weights they will safely carry and their deflections under various loads, with very simple apparatus they can determine for themselves the safe load per sq. in. and the E for the particular timber proposed to be worked.

It is not advisable in small houses to have varying thicknesses measured from ceiling below to floor above in the floor of any storey, so that the depth chosen for the widest span may be much greater than necessary in some other places. Students are cautioned against attempting to design so that they will have absolutely equal strengths everywhere: they must take what is called a common-sense view of things. A joist is of uniform section from end to end, but the bending moment varies from 0 at the points of support to a maximum (say) in the middle, and the shear varies from 0 in the middle, say, to maxima at the points of support, so that a joist is not proportional; it would be stupid to attempt to proportion it. In days gone by, when cast-iron girders were used, it was worth while to proportion the flanges and web, but any gain in material obtained by proportioning joists would be trifling compared to the loss by extra labour and the awkwardness of shape which would result from any such proportioning.

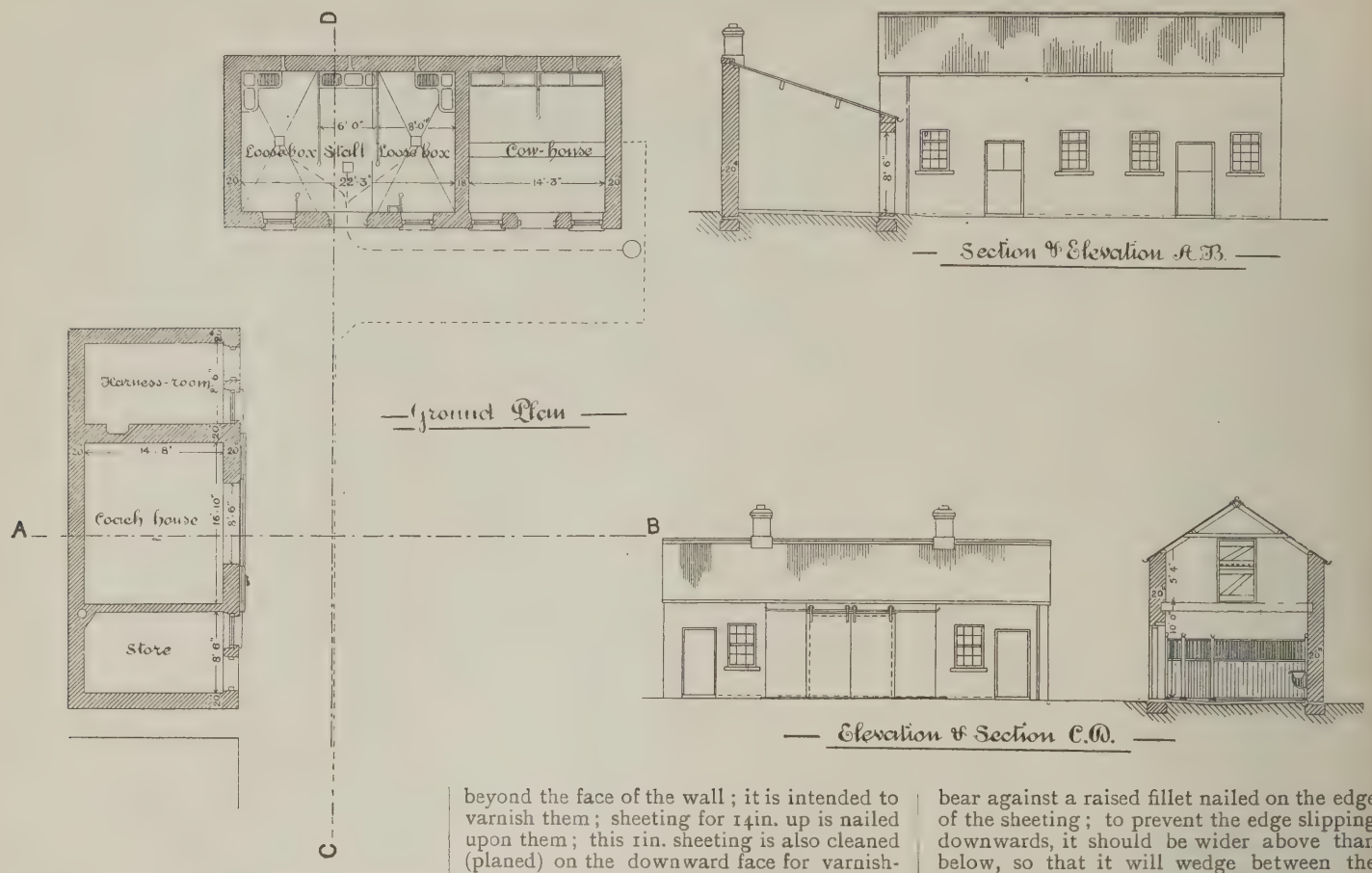
The load has been taken as uniform, and one joist has been dealt with on the supposition that it carried 1ft. wide of floor. We have found a deflection of ½in. in such a joist; suppose a joist to deflect ½in. and the next joist to it not loaded, a difference of level of ½in. between a pair of joists would be very serious, having regard to the lathing and plastering of the ceiling, which is directly attached to the joists. It is necessary to stiffen the floor in a direction transverse to the joists; this is done by "bridging." When pieces of joisting stuff are placed between the pair of joists in a continuous row it is called solid bridging. When it is formed of light 2in. by 2in. pieces as strut braces from the bottom of a joist to the top of its neighbour, it is called herring-bone bridging. The function of bridging is that if a joist is deflected by a special load upon it, it will not depress alone: it will carry its neighbours with it: the bridging distributes the load. The stresses on the bridging pieces may be supposed to put a compression stress in the flooring, and to cause either the joints beneath to gape or to put a pressure on the walls; the lathing has considerable value to hold the joists together at their lower edges. The ceiling might be attached to distinct ceiling joists. We found the deflection of the floor joists to be ½in.; if ceiling joists are carried by attachments, say 3ft. 9in. from the walls, the deflection will be only ¼in.

Sound deadening.—Slips 1½in. by ¾in. are nailed against the sides of the joists about 3in. from the top edges; these carry ¾in. sheeting cut in short pieces to lie across between the joists, and on this sheeting plasterer's coarse stuff is put, or slag-wool may be used.

Flooring.—However tightly fir-timber flooring may be laid, the joints may be expected to open slightly; if the flooring boards are in 4in. widths the opening will be only one-half what it would be with 8in. widths (there will be, of course, double the number of joints). Another advantage with narrow boards is that they may be nailed down to the joists at one edge as the work of laying proceeds, so that the nails or brads do not appear on the finished floor (this method ought always to be followed where the flooring is of hardwood). What are called framed floors—that is, floors carried on beams, binders and bridging joists—were occasionally needed on wide spans in *former times;* there does not appear to be much necessity for this form of construction now, owing to the strength and cheapness of mild-steel rolled joists. Old modes of splicing and scarfing heavy timbers have gone out of use for the same reason. Some students may see a framed floor now and again, but the great bulk of students never see them; they are inappropriate to a house of the class of this one. Let it not be supposed that it is intended to object to the study of these old forms of construction: they are valuable examples of the economical disposal of material in covering wide spans, and they may give useful suggestions for dealing with still wider spans when using the stronger material, steel; but it is better to talk to students in the lower stages, elementary and advanced, about more common forms which they more frequently see.

The first-floor joists of the house whose construction we follow have two rows of herring-bone bridging in the length of the drawing-room, &c. The flooring boards are tongued and grooved 1⅛in. thick white Baltic flooring, well cramped home; close heading joints well pressed home, bradded down, and the brads punched ⅛in. below the surface. For the ceilings the laths are nailed directly on the bottom edges of the joists. Care must be taken to have the joist edges, both above and below, truly in plane: the boards should be carefully examined that they are of uniform thickness before laying, and after laying the surface of the floors should be cleaned off, using smoothing planes.

Roof timbering.—It will be seen from the elevations that the ridge is all at the same level; the roof plan shows that this necessitates some slight variation of pitch: the portion over the bathroom is flattened to give sufficient headroom in this room. The rafters, 5in. by 2in., are collar-braced and held at the feet by the ceiling joists, which are spiked to the rafters. This is not, however, a sufficient description, because the hips introduce complications which are not quite adequately shown on the drawings. The ceiling joists are shown as running from east to west, and these do not tie rafters which span from north to south. The rafters of the front rest on a purlin 9in. by 4in., which is strutted from the walls of the hall; the mitre pieces are 10in. by 2in., supported on sufficient dragon pieces 3in. by 5in., and the ends of the purlin are secured to the mitre pieces by iron straps and substantial screws. The rafters towards the well are braced to the front rafters with collar braces. The north hip is stiffened by a light purlin 4in. by 6in., secured to the mitre pieces and tied with three iron straps 2in. by ⅜in., fastened with screws to the purlin and to the east and west collar braces, which the straps cross obliquely. There are three skylights shown; the larger one gives additional light to the passage at the schoolroom door (there is a window in the ceiling which also serves as a mode of access to the space between the ceiling and the slates); the principal use of these skylights is to light the space inside the roof. It is covenient to have this space lighted. Paths of flooring boards are made so that workmen having to do any repairs may move about with safety to themselves and the ceilings; workmen may pass out through the smaller skylights to the well, and so on to the roof. The well is formed of a single iron casting trough; it is placed to rest on the walls of the hall; it is free to expand and contract without affecting any joint; it is, in fact, a cast-iron tank. The pipe from it is of heavy cast-iron, jointed with flange joints and india-rubber washers, and the bolts well screwed home; it discharges the water through a special mouthpiece on to a lead trough, which carries it down the slates to the eaves gutter, as shown on section F G. There are never heavy falls of snow in the locality; nevertheless a light snow board (not shown) is placed resting on the eaves over this trough. This plan is adopted in preference to any form of lead construction, as less likely to go wrong and become leaky. The ceiling joists and braces are 5in. by 2in.; the flooring boards forming paths also serve to make the ceiling joists to depend upon one another to make them more rigid. The drawings show suspending pieces from the rafters to the ceiling joists; they are shown to



be hanging vertically. It is important that plaster ceilings shall be subject to only very slight movements or they will crack. For the ground-floor ceilings the question of the stiffness of the first-floor joists has been investigated. If we suspend ceiling joists from the rafters we must take care that the bending of the rafters in heavy gales of wind will not produce movements in the ceiling joists which will crack the ceilings. The suspending pieces in our example are not in the best places. The ridge is the stiffest part of the roof, and the suspending pieces should be attached to the rafters near to the ridge. Our example house gives no opportunity for a discussion of roof-trusses as ordinarily dealt with; nevertheless the principles of braced structures are involved in even the simplest roof. It will be observed that preparation for a water-supply tank is made near the large skylight. This tank is of heavy galvanized iron; it must be put in position before the roof is completed. Its position is such that if it ever requires to be taken out for a new one to be put in its place, this cannot be done without making a large hole in the roof; therefore, it should be of the most substantial character. This tank will be dealt with in connection with plumbing.

The wallplates are 4in. by 5in.; they are bedded true at the proper level, they have their inner face flush with the inner face of the wall, they are halved at all joinings, they are tied well at any cross walls, and they are held down by 2in. by $\frac{3}{8}$in. iron straps, turned at the top to catch the wallplates and fastened with screws, and the straps well caught in the inner face of the wall about 2ft. down. The rafters, which are cleaned, smoothed and trimmed at their lower (exposed) ends, notch, say, 2in. against the wallplate. Pieces of timber $\frac{1}{2}$in. thick should be lightly nailed against the rafters to prevent the masonry from touching them, and the spaces between then filled up with masonry levelled off true to the tops of the rafters. The trimmed ends of the rafters project 1oin. beyond the face of the wall; it is intended to varnish them; sheeting for 14in. up is nailed upon them; this 1in. sheeting is also cleaned (planed) on the downward face for varnishing. The hooks for carrying the eaves gutters are fastened from above to the rafters; they must be sunk to some extent in the sheeting (the tilting fillet will give relief at the edge of the sheeting); they should be of a substantial character, because a defective one cannot be renewed easily to match the others (any new hooks added after the slating is done must be fastened to the sides of rafter ends). The ridge pieces are 9in. by 1$\frac{1}{2}$in. Rafters are trimmed for chimney-stacks and skylights. To make the roof good at a chimney-stack like that on the west side requires care: it may be done with a fairly wide flat, slightly falling both ways (this will be dealt with under Plumber). It is probably better to put a small ridge roof here, and let it meet the main roof in a pair of mitre valleys: the drawing is defective in not showing what is intended to be done here. The projecting eave is carried past the stack in face to keep the eave continuous and to keep the connections with window dressings and frieze uniform: its construction is obvious. It will be observed that the valley which terminates near E is not straight. The pitch flattens at a line joining the break in the valley to D; there are two short barges. The outer line around the eave shows the outer edge of the eaves gutter; the barges copings are shown by wider spaces near D and E: the short piece of eave at E has not as much projection as the eaves generally. In no case should lead be fastened with nails. Everyone who has had any experience knows that lead laid on, say, the hips of a roof will almost irresistibly creep downwards, and it will tear where fastened, if with nails. This is a result of expansion and contraction—the lead when heated expands downwards, on cooling both the weight and friction resist contraction upwards: the consequence is that the top is dragged downwards and there is a wormlike progress downwards. The appropriateness of speaking of this here lies in our having to sheet for the lead valleys; the valley lead should be turned up along the edges and slightly over; this edge should bear against a raised fillet nailed on the edge of the sheeting; to prevent the edge slipping downwards, it should be wider above than below, so that it will wedge between the fillets. It is my practice to invariably place good roofing felt between lead and wood sheeting. If this precaution is not adopted the sheeting in most situations rots sooner than it should. This rotting is occasioned by moisture reaching the bottom of the lead in saturated air, where it condenses on the cold lead and wets the boards: it is a trap for moisture. The layer of felt makes it more difficult for the moist air to reach the lead, and it protects the wood from any moisture which does condense on the cool lead. The sarking or sheeting at the eaves is carried up to at least bear the heads of the doubling course of slates. It is felted; a tilting fillet is nailed along the bottom edge. The question as to whether the roof should be prepared for the slates by sheeting the rafters and felting the sheeting, or by battening and rendering the slates, deserves notice here. Sarking and felting costs more than battening, but it is a much better job, and it is worth the extra cost. The roof is cleaner and much warmer; there is no trouble from rendering material falling down upon the lathing and keying of the ceilings, where it cannot be easily cleared up. I am in favour of giving a coat of pitch softened with tar, and applied hot, to the felt, as making the felt closer and giving a foundation in which the heads of the slates stick—as the scales stick on the skin of a fish. It prevents the rattling of the slates in a high wind. Slates so prepared for should be fastened with good strong copper nails. The objection to this mode of preparing for slates is that in the case of breakage of slates it is not easy to get out the head of the broken slate so as to make a good mend. There are slates put upon roofs nowadays which are so thin that they break very easily, so easily that they do not safely bear the weight of the slaters who fix them, and the roof is a broken roof from the beginning of its existence. The ridiculous defence is made that thin slates are called "first" quality. It is quite time that architects combine to put down this absurd denomination. A minimum thickness

of slate should be specified. The mischief lies in these thin slates having got into dealers' stocks, and people in small out-of-the-way places have to put up with whatever they can obtain. I have been called upon recently to criticise a large new roof (of a church) which has been covered with thin slates. I have had to report that there are a great many broken and defective slates; the contractor has done some mending by slipping up slates and pieces of slates, and he has fastened these by nailing them down through the tails. In many parts of this *new* roof narrow pieces of sheet zinc are slipped up under broken slates. The work is altogether an unfortunately bad job for all the parties concerned. Slates are occasionally bedded in mortar (which is carried on the sheeting) over the whole area of the roof. Battens are nailed upon the sheeting, and the slates are nailed to the battens, so that there is a considerable thickness of mortar. This makes a heavy roof; the mortar prevents the slates moving (rattling) with the wind; I prefer felting and pitch. Our house was slated on battens in the common way and rendered with haired rendering mortar. The situation being very exposed, it was specified that the slates should be bedded in mastic and oil, at the tails, in such a way that the mastic would not show on the roof. Unfortunately the proprietor allowed himself to be persuaded to let the contractor off from this work, with the result that it had to be done after the slating was finished at additional expense and in a less satisfactory way—staining the slates with oil.

The cutting of a raglet in concrete is always unsatisfactory; it should be provided for by a fillet on the mould—this in reference to the preparation for cover-flashing at the chimneys.

The barges are secured with smoothly-finished concrete copings. These copings have a sufficient catch upon the walls and on the edges of the slates—the slate edges are bedded in cement-mortar; the joint at the upper end of the coping is made good by means of a lead apron which passes up under the tail of the overlying slate. Slates should not be nailed at the head unless they are of very small size or for some special peculiar reason. Small-sized thick slates were used one hundred years ago; they were holed with a single hole at the head; this hole was filled with a wooden peg, and by this peg the slate was hung upon split laths somewhat heavier than common plasterer's laths, and the work was rendered inside; this made a poor job. For various reasons, mostly other than reasons of efficiency, roofs are still occasionally covered with tiles. Tiles may be pegged and hung upon sawn laths (or battens) in the same manner as the old thick slates above described were hung on split laths, or they have catches formed upon them (thus saving the trouble of pegging) which take hold of the battens. Flat tiles are put on as if they were slates, but corrugated or variously channelled tiles, which are common, are put on so that there are never more than two thicknesses of tile at any part. Tiled roofs require to be steep in pitch; they do not appear to be so easy to make secure and watertight as good slated roofs. In my experience they are unsuitable in exposed situations. If compelled to use tiles, I would nail sarking on the rafters; this sarking should be covered with felt or other bituminous covering, which should be made watertight and well coated with hot pitch; on this I would nail short lengths of battens, with spaces at the ends to let any water pass, and on these battens the tiles should be laid. The battens should also be well coated with hot pitch. Such a roof is watertight independently of the tiles, but the tiles protect it from the weather and sun.

(To be continued.)

Builders' Notes.

The Leicester Master Builders' Association held its annual dinner last week. The president, Mr. Edwin Fox, was unable to be present in consequence of illness, and Mr. Arthur Chambers therefore presided.

The Nottingham Branch of the National Association of Master House-Painters held its sixth annual dinner last Thursday. Mr. W. Bee (president of the local association) occupied the chair, and Mr. J. Riley, the president of the National Association, a Nottingham member, was present.

The Scottish Building Trades Federation have just approved of a series of important alterations on the constitution and rules. Mr. Stocks, builder, Dundee, has been appointed president for the current year, and Mr. John Morgan, Aberdeen, vice-president. The meetings this year will be held in Dundee. Next year Mr. Morgan will fill the office of president, and the Federation will meet in Aberdeen.

The Harrogate Builders' Federation held its annual meeting last Thursday. Mr. R. Fortune, the retiring president, occupied the chair. Mr. W. T. Topham (secretary) and Mr. J. Knowles (hon. treasurer) presented their reports, which were considered satisfactory and were unanimously adopted. Mr. W. Stott was then appointed president for the ensuing year, and Mr. Dickinson and Mr. F. Jackson were elected vice-presidents. Mr. W. Topham (secretary) and Mr. J. Knowles (hon. treasurer) were reappointed.

The Wakefield and District Master Builders' Association held its annual meeting recently. Councillor Judge presided. Mr. Henry Fallas, of Horbury, was elected president for the ensuing year. Councillor Judge, Alderman Atkinson, Mr. J. Bagnall and Mr. G. Crook were elected vice-presidents, and Messrs. C. S. Denison, E. A. Elvey, John Kitson, T. Lee, J. Pashley, J. M. Abson, W. J. Atkinson, H. Blackburn, J. E. Bramald, J. W. Sanderson, T. E. Senior, F. E. Mosley, W. H. Moss, M. E. Rycroft and G. R. Parker, the general committee. The president and Councillor Judge were elected the representatives of the Association on the Executive Council of the Yorkshire Federation for the ensuing year; and Mr. Beaumont was re-elected secretary. The deaths of two members of the Association—Mr. G. Wilson (of the firm of Messrs. T. & G. Wilson) and Mr. William Kitson (of the firm of Messrs. W. Kitson & Sons)—were referred to.

Trades' Training School.—The certificates and prizes awarded to students of the Trades' Training School were distributed last week by Lord Monkswell at the Carpenters' Hall, London Wall. The school is carried on at 155, Great Titchfield Street, by six of the City companies—namely, the Carpenters, Joiners, Painter Stainers, Plaisterers, Tylers and Bricklayers, and Wheelwrights. A report on the work of the school during the past session was read by Prof. T. Roger Smith, who said that he could honestly congratulate the allied companies on the uninterrupted prosperity of the school. Instruction had been given in eleven classes, and in some cases the work was the best that they had ever had. No students were admitted who were not in some way or other connected with the building trade. Afterwards the certificates and medals gained at the Carpenters' Company's examinations in sanitary building construction and in carpentry were distributed.

London County Council: Vaults of Carr's Restaurant.—At last week's meeting of the Council considerable discussion took place upon a recommendation of the Improvements Committee that £203 should be paid by the Council to the owners of Carr's Restaurant at the eastern end of the crescent at the lower end of the new street to be formed from Holborn to the Strand, in consideration of being relieved from the obligation of constructing new vaults. In their report upon the subject the Committee mentioned that the vaults which had been constructed extended 16ft. beyond the new frontage line of the building instead of 12ft. as allowed in the case of other vaults along the new street. It had already been arranged to plant trees on the footways, and to enable that to be done in front of Carr's Restaurant (a length of 104ft.) it would now be necessary to alter the position of the subway for pipes. The owner of the restaurant, before constructing the vaults, obtained the sanction of the Westminster City Council, but the Committee were advised by the solicitor that, having regard to the special provisions of the Act of 1899, which authorised the improvement, the Council was the only authority having power to sanction the construction and extent of the vaults. The City Council did not, however, accept this contention of the Council, and stated that it failed to see that its action in the matter had been in excess of the statutory authority possessed by it under the Metropolis Management Act, 1855, or had impinged upon the special powers obtained by the Council. The Committee learnt that Mr. Cox (the owner of the premises) had already let a large portion of the new vaults, and, whilst they regretted that the architect (Mr. Emden) acting for Mr. Cox did not, after communicating with the local authority, inform them of his intention to construct the vaults to the line sanctioned by the Westminster City Council, they felt that, having regard to all the circumstances, they could hardly advise the Council to refuse payment until the vaults had been reduced to the 500ft. super. as originally agreed with Mr. Emden. Eventually the matter was referred to the General Purposes Committee.

Engineering Notes.

The Will of the late Mr. W. H. Barlow, president of the Institution of Civil Engineers in 1880, engineer of the Tay Bridge, and joint engineer with Sir John Hawkshaw for the Clifton Suspension Bridge, has been proved at £68,015.

Collapse of a Girder-Bridge.—On Sunday morning an alarming accident occurred on the railway just outside Shrewsbury Station. A number of men were engaged in taking down a girder-bridge which spans a roadway near Castle Foregate, when the structure collapsed and nearly the whole of the men were precipitated a distance of 15ft. to 20ft. Ten of them were taken to the infirmary, three being detained. Two of these have suffered fractures of the leg and other injuries. The condition of one man is serious.

The Society of Engineers held its annual general meeting last week. The chair was occupied by Mr. Percy Griffith, president. The following gentlemen were duly elected by ballot as the Council and officers for 1903:—As president, Mr. James Patten Barber; as vice-presidents, Messrs. David Butler Butler, Nicholas James West and Maurice Wilson; as ordinary members of Council, Messrs. Joseph Bernays, George Austin Pryce Cuxson, George Abraham Goodwin, William Henry Holttum, Richard St. George Moore, Henry Sherley-Price, Joseph William Wilson and Edward John Silcock; as hon. secretary and treasurer, Mr. George Burt; as hon. auditor, Mr. Samuel Wood, F.C.A. Mr. Griffith announced that the following premiums had been awarded by the Council for papers read during the past session:—The President's Gold Medal to Mr. Thomas Andrews, F.R.S., for his paper on "The effect of Segregation on the strength of steel rails"; the Bessemer

premium of books to Mr. Augustus R. Galbraith for his paper on "The Hennebique System of Ferro-Concrete Construction"; a Society's premium of books to Mr. Benjamin H. Thwaite for his paper on "British *versus* American Patent Law Practice and Engineering Invention," and a Society's premium of books to Mr. Brierley D. Healey for his paper on "Recent Blast-Furnace Practice."

Keystones.

"The Red House," Bexley Heath—William Morris's house — was sold on December 8th for £2,850.

Newington Workhouse, Westmoreland Road, London, has been extended by the addition of new relief offices, dispensary, married couples' quarters, nurses' home, and nursery, at a cost of £3,100 for site, £20,825 for the building, and £1,000 for furnishing.

Stucco and Plaster at the Guildhall.—The following motion was adopted by the Corporation of London last week: "That, having regard to the desirability of removing the covering of stucco or plaster which now disfigures the walls of the interior of Guildhall, the City Lands Committee be instructed forthwith to make arrangements for the necessary work to be proceeded with."

Discoveries in Greece.—The German Institute at Athens celebrated the anniversary of the birth, in 1717, of Johann Joachim Winckelmann, the famous archæologist, last week, when Herr Herzog, who has just discovered the Temple of Æsculapius on the island of Kos, delivered a lecture describing his researches, in the course of which he stated that the inscriptions proved that the treatment of the sick was conducted on strict scientific principles, and that the cures were free from either "miracles" or quackery. His discoveries had demonstrated the literal truth of the statements regarding the Temple of Æsculapius contained in the writings of the ancient geographer Strabo.

M. Alexandre Bertrand, curator of the Chateau St. Germain museum, Paris, died last week at the age of eighty-three. M. Bertrand, whose fame as an archæologist was world-wide, was a pupil of the École Normale who, in 1848, was appointed member of the school of Athens. He was one of the original founders of the admirable and interesting museum of St. Germain, which is in its way the great national museum of France, for it contains the largest and most varied collections of objects illustrating the Celtic, Gallic, Gallo-Roman and Roman past of the nation which exist anywhere in the world. Ever since 1862 he has been its curator, while at the same time professor at the École de Louvre of National Archæology.

Garden City Association.—The fourth annual report of this Association, presented to the annual meeting held last night, shows a satisfactory balance in hand of nearly £50 and a membership of 1,800 (two years ago it was 325, and last year 530). During the past year more than fifty lectures on the scheme were delivered in London and the provinces. The Association has now forty local correspondents, and two branches have been formed in Manchester and Liverpool with a combined membership of 300. A Garden City Association has also been formed in Germany, with headquarters in Berlin, and the Association has correspondents in Switzerland, the United States, Australia and Japan. The preliminary Pioneer Company has been successful in raising the whole of its capital, and more than £20,000 has been offered to be subscribed. The directors are now investigating estates and negotiating with manufacturers, and important developments may be expected shortly.

The Manchester Society of Architects held a meeting last week, Mr. Alfred Darbyshire presiding, when Mr. P. S. Worthington delivered an address on "Homes of the Monks during the Middle Ages."

A Bronze Memorial Statue of Dean Colet, the founder of St. Paul's School, has been erected. The statue, by Mr. Hamo Thornycroft, R.A., is set up in front of the large and handsome building of the great school at West Kensington.

The Lombard Street Signs.—The Corporation of London have agreed to the report of the Streets Committee recommending that the "old signs" in Lombard Street erected as decorations in honour of the King's Coronation should, where they overhang the public way, be removed.

Glasgow Libraries Competition. — A design by Mr. W. B. Whitie, of Glasgow, has been placed first for the library at Sprinburn, and designs by Mr. J. R. Rhind, of Inverness, selected for libraries at Woodside, Gaval Hill and Crosshill, and Mary Hill.

Mr. W. A. Longmore, F.R.I.B.A. who was enrolled in the Honourable Artillery Company in the year 1851, is the oldest volunteer in the United Kingdom. Mr. Longmore was for more than twenty years architect to the Walthamstow School Board, from which post he retired two years ago.

"Ecclesiastical Art in Byegone Days" is the title of a series of illustrated articles by Mr. William Marriott Dodson being published in the "Photographic Art Journal," the first appearing in the December issue. They will deal with wood-carving, stone-carving, metal-work, early sculpture, stained glass and tapestry.

The Cathedral of Nova Sancta Sophia is proposed to be built in New York at a cost of five millions sterling. It is to be 550ft. long with a height of 478ft. high to the top of the great dome. Accommodation will be provided for 70,000 worshippers. All the side chapels are domed, and at each side of the great entrance is a tall tower surmounted by an angel.

Bermondsey Housing Competition.—The following are the awards in the competition for a housing scheme in the Fulford Street area:—1st, Messrs. Brocklesby, Marchment & East (Merton); 2nd, Messrs. Humphrey Davis & Co. (London, E.C.); 3rd, Messrs. Sills & Leeds (London, W.C.). Mr. John Slater, F.R.I.B.A., was the assessor. The designs will be on exhibition at the Rotherhithe Town Hall, Lower Road, S.E., from to-day till Saturday.

Fireproof Floors.—The tender of the Columbian Fireproofing Co., Ltd., 37, King William Street, E.C., has been accepted by the Lancashire and Yorkshire Railway for fireproof floors at their new offices, Nos. 10, 11 & 12, Great College Street, Westminster; and they have just completed their work at the new Medical Schools, Cambridge, for Mr. E. S. Prior, M.A., of 3, Old Serjeants Inn, Chancery Lane, E.C.

Edinburgh Architectural Association.—The Associate Section of this Society held their second ordinary meeting of the session in the Rooms, 117, George Street, on Wednesday last. Mr. J. Douglas Trail occupied the chair. Mr. James Grieve read a paper entitled "Hints on Building Construction." The lecture was treated in a very practical manner, starting with the choice of foundation and going through the different stages of construction. Many points of difficulty which arise during the erection of a building were fully explained. Mr. J. Stuart Syme moved a hearty vote of thanks to Mr. Grieve. In the discussion which followed Messrs. Lament, Gillespie, Arnot and Trail took part.

A Stained-Glass Window has been placed in the Parish Church, Westbury, Bucks, in memory of the late Lord Barrington.

A Statue of the King-Emperor is to be erected at Madras. The pedestal is to be of Mysore porphyry, and is being cut after a special design furnished by the sculptor.

At the Princess Road Board School, Regent's Park, W., a new school hall has been erected, to be used by the infants for physical exercise, &c. The walls of the hall are painted a light green, with a terra-cotta frieze and a dado of dark-green glazed tiles, while the ceiling is fireproof. The apartment will seat about 400 children.

St. Mark's Campanile.—Signor Nasi, Minister of Public Instruction, in reply to questions in the Italian Chamber, stated that it had already been proved by the committee of enquiry that any steps which might have been taken to restore the campanile would but have hastened its downfall. A Bill to provide for the better preservation of public monuments is to be presented to the Chamber.

Mr. Le Queux's Discovery.—Mr. William Le Queux, who is making some important excavations of Roman remains at Castor, Northamptonshire, the site of the Durobrivæ of Antoninus, made a very remarkable discovery on Saturday in a field close to the remains of the ancient Ermin Street, consisting of the floor and boundary walls of a temple, believed to be that of Jupiter. The floor is 40ft. long by 20ft. wide, beautifully tessellated in a design of white and red in perfect preservation. Great quantities of brilliant red frescoes have been dug out, together with bones, ashes, Roman pottery and glass. In the centre of the room is a large pear-shaped hollow about 2ft. deep and 10ft wide, in the centre of which are remains of the base of the altar.

Mr. George R. Ford, a well-known architect and surveyor practising at Burslem, of which town he was a native, died somewhat unexpectedly at his residence, Sidmouth Avenue, Newcastle-under-Lyme, on Wednesday night. The deceased was the son of the late Mr. William Ford, builder, Burslem, and served his articles with the late Mr. John Ward, of Hanley. He was twice mayor of Burslem (1883 and 1884), and only recently retired from the position of an alderman of the borough. Amongst several important appointments which he held was that of valuer to the Assessment Committee of the Wolstanton and Burslem Union. He was also surveyor to the Wolstanton Urban District Council.

Ulster Society of Architects.—The annual meeting of this Society was held at Belfast on Wednesday last, Sir Thomas Drew presiding. The annual report stated the membership to be fifty-seven. The following elections were made for the ensuing year:—President, Sir Thomas Drew; vice-president, Mr. W. J. Gilliland; hon. secretary, Mr. N. Fitzsimons; hon. assistant secretary, Mr. W. B. Fennell; hon. treasurer, Mr. H. Seaver; members of council, Messrs. W. J. Fennell, F. H. Tulloch and J. J. M'Donnell, J.P.; associate members of council, Messrs. T. Houston and W. C. Maxwell; hon. auditors, Messrs. J. St. J. Phillips and Vincent Craig. The annual dinner of the Society was held in the evening. In responding to the toast of the evening Sir Thomas Drew asked the members to turn their attention to showing works of architecture in pictures at exhibitions. There was but one place in Ireland open for that at present, and it was most desirable that the Royal Hibernian Academy Exhibition should every year contain a collection of architectural works worthy of the country, which had not been the case hitherto.

New Companies.

Tipton Land Co., Ltd.

Registered to acquire the Horseley Colliery Estate, Tipton, and to get and deal in coal, and as colliery proprietors generally, engineers, brickmakers, &c. Capital £15,000 in £1 shares.

Cwmbran Building Co.

Registered to acquire lands and buildings in the United Kingdom, and to carry on the general business of land and property owners, builders, contractors, &c. Capital £8,000 in £1 shares. Registered office: 23, St. Mary Street, Cardiff.

J. M. Mansell, Ltd.

Registered to acquire, as a going concern, the business of a brick manufacturer as now and hitherto carried on at Worcester by J. P. Mansell at Dixon's Green, near Netherton, Worcestershire, and, generally, to carry on business as brick, tile and terra-cotta makers, &c. Capital £3,500 in £1 shares.

Eames, Thrower & Co., Ltd.

Registered to carry on business in household machines and utensils, articles and effects of every description, and general ironmongery, tin and wood ware, turnery, &c., as now carried on by Eames & Thrower, 6, New Briggate, Leeds, Yorkshire. Capital £5,000 in £1 shares.

Crowther & Wilkinson, Ltd.

Registered to carry on in all or any of their respective branches the businesses of joiners, builders and contractors, painters, and to erect and maintain, either for the purposes of the company or otherwise, machinery, plant and apparatus used in connection therewith. Capital £1,000 in £1 shares. Directors: S. Crowther and G. R. Wilkinson. Registered office: Abb Street, Marsh, Huddersfield.

F. and E. Davey, Ltd.

Registered to carry on business as general builders, contractors, engineers, timber merchants, bank, shop, bar and office fitters, machine joiners, stonemasons, artificial stone manufacturers, decorators, plumbers, electrical engineers and electricians; to construct rail and tram roads, &c. Capital £10,000 in £1 shares. Directors: F. and E. Davey. Registered office: Southend-on-Sea.

Morris & Sons, Ltd.

Registered to carry on the business of glass merchants, importers and exporters, &c., of every description; as bevellers, embossers and engravers, manufacturers of window leads and casements, facias, &c., as carried on by Morris & Sons. Capital £2,000 in £1 shares. Registered office: 237 to 239, Kennington Road, Surrey.

Chris. Lucas, Ltd.

Registered to acquire the business of a lamp manufacturer and hardware merchant carried on at the Atlas Lamp Works, Great King Street and at Little King Street, Hockley, Birmingham, as Chris. Lucas; and the business of manufacturers carried on at Bridge Street, West Birmingham, as the Murdoch Gas Fittings Co. Capital, £10,000 in £1 shares.

Samuel Elliott & Sons, Ltd.

Registered to carry on the business of joiners, moulders, carpenters, builders, decorators, painters, wood workers, timber merchants, sawmill proprietors, &c. The first directors are J. C. Fielder, S. Elliott and A. S. J. Elliott. Capital £40,000 in £1 shares (35,000 preference). Registered office: Caversham, near Reading.

Taylor's Quarry Contract Syndicate, Ltd.

Registered to acquire certain quarries in Ireland, Carlingford, Louth and elsewhere, and to develop and work the same as quarry-owners, &c. Capital £2,000 in £1 shares. Registered office: 4, Walbrook, E.C.

Niger Patent Elastic Enamel Co., Ltd.

Registered to acquire (under agreement with W. Davey, of Birkenhead) certain patents relating to improvements in the manufacture of enamels, and to develop and work the same. Capital £1,500 in £1 shares.

Truro Colour Co., Ltd.

Registered to acquire the business of colour, ochre and umber manufacturers, driers and preparers for market, carried on by A. Paull at Ashburton. Capital £20,000 in £1 shares.

Stephens & Johnson, Ltd.

Registered to carry on business as manufacturing and builders' ironmongers, makers of and dealers in ammunition; as house furnishers, as carried on by Stephens & Johnson, at Aldershot; as electricians and electrical engineers, general engineers and metal founders, iron and steel converters. Capital £11,000 in £1 shares.

Guildhall Street Estate Co., Ltd.

Registered to acquire any property, houses and other buildings of all kinds, and certain property in Temple Court and elsewhere; as builders and contractors, and builders' merchants, timber dealers, &c. Capital £6,000 in £1 shares.

Lyme Regis Cement Co. (1902), Ltd.

Registered to acquire the business of a company having a similar title, and to carry on business as manufacturers of cement, whiting, lime, plaster-of-Paris; as dealers in chalk, bricks, tiles, &c. Capital £50,000 in £1 shares.

F. H. Brook, Sons & Co., Ltd.

Registered to carry on business as brick and tile manufacturers and dealers; to prepare for market lime, cement, timber, and other building requisites; as builders and contractors, &c. Capital £2,000 in £1 shares. Registered office: 171, Queen Victoria Street, E.C.

British Building and Finance Co., Ltd.

Registered to acquire and turn to account by purchase or otherwise any lands, properties, estates; to lay out and prepare the same for building purposes, clearing, draining; as builders and contractors, dealers in building materials, house-breakers, carpenters, outfitters, decorators; to establish and furnish hotels, theatres, &c. Capital £100 in £1 share. Registered office: 57½, Old Broad Street, E.C.

Trade and Craft.

"Ruberoid Roofing."

Messrs. Robert W. Blackwell & Co., Ltd., of 59, City Road, London, E.C., are the representatives in this country for that useful American material—Ruberoid roofing. It is a slate-coloured felt impregnated with a water- and acid-proof solution, and has many admirable qualities. Being of felt, it is a good non-conductor, and therefore keeps buildings cool in summer and warm in winter; but it has not the disadvantage of tarred felt of being softened by the sun's heat, or the heat from any boilers, furnaces, &c. It is made in rolls of four weights—half, one, two and three ply—each 36in. wide and containing 216 sq. ft., which are sold as 200 sq. ft., the extra 16ft. being included to allow for laps at the seams; nails, tin caps and "ruberine" (a special compound for cementing the seams) are also supplied free with each roll. The roofing may be laid on the sheathing boards or over galvanised-iron wire; for the latter the rafters and studs are framed at 2ft. 10in. centres. The laps are cemented with "ruberine" and afterwards secured with the tin caps and nails, which are themselves coated with "ruberine"; though, if desired, battens may be used in place of the tin caps. The roofing does not need any coating when laid, but should be examined after it has been down for about two years, when any defects should be remedied, and then also, if the conditions are very exceptional, it may be given a coat of "ruberine" paint. This roofing is quite free from smell and does not contaminate rainwater. In addition, it makes an excellent damp-course. The cost of "Ruberoid" roofing per roll is as follows:—½-ply, 17s. 4d.; 1-ply, 20s 6d.; 2-ply, 27s. 9d.; 3-ply, 36s. 6d.; the weights per roll are 42lbs., 58lbs., 78lbs and 98lbs. respectively. Pamphlets giving further particulars can be obtained on application to Messrs. Blackwell at the address given above.

A New Flooring Material.

On Friday last a demonstration of a new flooring material called "Lignolite" was given at 69, King William Street. This material consists of a kind of sawdust-mortar, that is to say, certain liquid chemicals are added to sawdust so as to reduce it to a plastic state. It is laid like mortar and sets hard in two days, yet retains the warmness and elasticity of wood. In addition, it is fireproof and impervious. It is slightly more expensive than ordinary floor boards, but cheaper than wood blocks. The material has been used in some of the London hospitals and by well-known architects—Mr. Rowland Plumbe, we believe, speaks well of it. In colour it is a reddish-brown and resembles linoleum. Further particulars can be obtained by applying to Bernhard's Lignolite Flooring Co. at the above address.

Coming Events.

Wednesday, Dec. 17.

ARCHITECTURAL ASSOCIATION.—Discussion Section and Camera and Cycling Club joint meeting, at 7.30 p.m.

SOCIETY OF ARTS.—Mr. Archibald P. Head, M.I C.E, on "The South Russian Iron Industry," 8 p.m.

CHEMICAL SOCIETY.—Meeting at 5 30 p.m.

INSTITUTION OF ELECTRICAL ENGINEERS.—Dinner at Hotel Cecil at 7.30 p.m.

EDINBURGH ARCHITECTURAL ASSOCIATION.—Mr. Thomas Aldwinckle, F.R.I.B.A., on "The Erection of Isolation Hospitals in times of Emergency. A Description of the hospitals erected this year in connection with the recent outbreak of small-pox in London, and at other periods of emergency." 8 p.m.

Thursday, Dec. 18.

LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY (Craft Evening).—Mr. E. C. Spence on "Modelling," and Mr. Andrew Willetts on "Door Furniture," 6.30 p.m.

INSTITUTION OF ELECTRICAL ENGINEERS.—Mr. W. B. Esson on "Notes on Recent Electrical Designs," 8 p.m.

SOCIETY OF ANTIQUARIES OF LONDON.—Meeting at 8.30 p.m.

Friday, Dec. 19.

GLASGOW AND WEST OF SCOTLAND TECHNICAL COLLEGE ARCHITECTURAL CRAFTSMEN'S SOCIETY.—Meeting at 204, George Street, Glasgow. Discussion on Fireproof Construction to be opened by Mr. Robert W. Horn, A.R.I.B.A.

INSTITUTION OF MECHANICAL ENGINEERS.—Mr. J. N. S. Williams on "Cane Sugar Factories in the Hawaiian Islands," 8 p.m.

INSTITUTION OF CIVIL ENGINEERS (Students' Meeting).—Mr. P. R. Wray on "Electricity Supply from Double-Current Generators," 8 p.m.

ARCHITECTURAL ASSOCIATION.—Mr. W. H. Bidlake on "The Study and Delineation of Old Buildings."

Saturday, Dec. 20.

GLASGOW AND WEST OF SCOTLAND TECHNICAL COLLEGE SCIENTIFIC SOCIETY.—Eleventh Anniversary Dinner at 7.30 p.m.

Tuesday, Dec. 23.

ABERDEEN GRANITE TRADE LECTURES.—Mr. William Kelly on "The Past and Present of Building."

Saturday, Dec 27.

ROYAL INSTITUTION.—Prof. H. S. Hele-Shaw on "Locomotion, on the Earth, through the Air, in the Water"—I., 8 p.m.

CASTLE DONINGTON CHURCH.

THE chancel of Castle Donington parish church has been restored. The church dates from the thirteenth century. It was thoroughly restored, with the exception of the spire and chancel, in the years 1876-7. A peal of six new bells was shortly afterwards added, together with a massive clock and quarter chimes, hung in the west front of the tower. Later the spire was badly damaged, presumably by lightning. This necessitated a complete restoration of the higher parts of the fabric. Meantime, however, the chancel had fallen into a state of extreme dilapidation. The whole of the chancel, both exterior and interior, has now undergone a complete restoration. Although as much as was possible of the ancient fabric has been retained, it has been found necessary to make extensive renewals. The oaken roof, with heavy lead covering, is entirely new, with the exception of the old massive cross-beams which, being found in an excellent state of preservation, were replaced. The floor is inlaid with Hopton white stone and black marble. The spacious square pews belonging to the Hastings family, and which for generations have been a distinctive feature of the chancel, have been replaced by pews of a more modern style. These are of massive English oak. Radiators have been put in. Several interesting discoveries were made during the restoration, including two recesses, one on either side of the chancel arch and adjoining the choir. These have been partially built up for the purposes of adding to the strength of the columns. A hagioscope, a peculiar feature of ancient architecture, was also reopened, giving a view from the south door to the communion table. An ancient doorway on the north side of the chancel has also come to light. The new oaken door on the south side is included in the restoration scheme. An ancient piscina was discovered quite accidentally during the operations, whilst the sedilia were so restored as to be ready for use by the clergy when necessary. As far as possible the walls have been pointed within and without, and faced with plaster on the interior. A curious small window, immediately over the hagioscope, is shortly to be replaced by a stained-light representing the Nativity. A stained window has been placed at the eastern end. The total cost of the restoration is approximately £2,000.

Complete List of Contracts Open.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDERS MAY BE OBTAINED.
	BUILDING:		
Dec. 18	Halifax—Nineteen Houses		M. Hall, 29 Northgate, Halifax.
„ 18	Aberystwyth—Business Premises and Stables	D. Roberts & Sons	T. E. Morgan, Architect, Aberystwyth.
„ 18	London, W.—School and Manual Centre	Acton School Board	E. Monson & Sons, Architects, Grosvenor House, Acton Vale, W.
„ 18	Blackpool—Police Station	Corporation	J. S. Brodie, Borough Engineer, Town Hall, Blackpool
„ 18	Llantwit Fardre, Wales—Villa	S. Y. Knight	A. Ll. Thomas & W. E. Cole, Architects, Town Hall Chambers, Pontypridd.
„ 18	Morley—Repairs	Sewage Purification Committee	W. E. Putman, Borough Surveyor, Town Hall, Morley.
„ 18	Swansea—Offices	Harbour Trustees	T. Smith, Clerk, Harbour Office, Swansea.
„ 18	Leicester—Bricks	Corporation	E. G. Mawbey, Borough Surveyor, Town Hall, Leicester.
„ 18	London, E.C.—Counter and Cabinet, &c., in Refreshment Bar	Central Finsbury Radical Club	C. W. Harding, Secretary, 326 City Road, E.C.
„ 19	Dovercourt—Underground Convenience		H. Ditcham, 7 West Street, Harwich.
„ 19	Mansfield—Two Cottages	Corporation	J. H. White, Town Clerk, Mansfield.
„ 19	Tyrie, Scotland—Renovation of Church		W. Reid, Architect, Saltoun Square, Fraserburgh.
„ 19	Hull—Alterations, &c., to Sanatorium	Corporation	J. H. Hirst, City Architect, Town Hall, Hull.
„ 20	Gloucester—Alterations, &c., to School	School Board	W. B. Wood, 12 Queen Street, Gloucester.
„ 20	Radyr, Wales—House, &c.	School Board	A. O. Evans, Architect, Pontypridd.
„ 22	Hastings Alterations, &c., to Convenience	Corporation	P. H. Palmer, Borough Engineer, Town Hall, Hastings.
„ 22	Uxbridge—Bathroom &c.	Joint Hospital Board	B. Freeman, Swiss Cottage, Chiltern View Road, Uxbridge.
„ 22	Aston, Birmingham—Additions, &c., to Workhouse	Union Guardians	Clerk of Works, Workhouse, Gravelly Hill, Birmingham.
„ 22	Nottingham—Repairs and Jobbing Works	Corporation	W. Smith, Estates Surveyor, Guildhall, Nottingham.
„ 23	Carrickmacross—Additions to Convent	Convent of St. Louis	D. W Morris, 68 Harcourt Street, Dublin.
„ 23	Glasgow—Library	Corporation	Stewart & Paterson, 143 West Regent Street, Glasgow.
„ 23	Limerick—Post Office		District Office of Public Works, Limerick.
„ 27	Wigan—Twenty-five Cottages	Corporation	Borough Engineer, Municipal Buildings, Wigan.
„ 28	Pengam, Wales—Twenty-five Houses		D. Williams, Board Schools, Pengam.
„ 29	Great Ayton, Yorks—Police Station	North Riding County Council	W. H. Brierley, 13 Lendal, York.
„ 31	Aberystwyth—Premises		J. A. Jones, 7 Queen's Terrace, Aberystwyth.
„ 31	Hull—Thirty-four Artizans' Dwellings	City Improvement Committee	J. H. Hirst, City Architect, Town Hall, Hull.
Jan. 1	Glenville, co. Cork—Priest's House		S. F. Hynes, 21 South Mall, Cork.
„ 5	Trowbridge, Wilts—Hospital	Isolation Hospital Committee	J. H. Goodman, Architect, Town Hall Chambers, Reading.
„ 5	Aber, near Caerphilly, Wales—Ninety-five Cottages	Windsor Building Club	E. Thomas, 19 Eirw Road, Porth.
„ 5	Heworth, Durham—Schools	School Board	G. Bell, Westgate Road, Newcastle-on-Tyne.
„ 5	Leytonstone—Schools	School Board	W. Jacques, 2 Fen Court, Fenchurch Street, E.C.
„ 6	Northwich Infirmary Extension		J. Holland, Architect, Hayhurst Street, Northwich.
„ 6	Strabane, Ireland—Cottages	Rural District Council	J. E. Sharkie, Clerk, Urban District Council, Strabane.
„ 7	Grays, Essex—Library	Urban District Council	C. M. Shiner, 6, 7 & 8, Crutched Friars, E.C.
„ 16	Water Fulford, near York—Asylum		A. Creer, Architect, Guildhall, York.
No date.	Keswick—House		H. A. Cheers, Architect, Twickenham, W.
	ENGINEERING:		
Dec. 18	Egremont, Cheshire—Gasworks Extension	Wallasey U.D.C.	J. H. Crowther, Engineer, Great Float, near Birkenhead.
„ 18	Swansea—Half-Tide Extension	Harbour Trustees	A. O. Schenk, Trustees Engineer, Harbour Offices, Swansea.
„ 18	Bristol—Roofing, &c., at Wharf	Midland Railway Co.	Company's Architect, Cavendish House, Derby.
„ 20	Roe Sound, Zetland—Bridge	County Council	E. K. Carmichael, 8 North Bank Street, Edinburgh.
„ 20	Sidmouth—Electric Lighting	Urban District Council	J. A. Orchard, Clerk, Council Offices, Sidmouth.
„ 20	Alexandria, Egypt—Steamer		Inspector of Irrigation, Third Circle, Alexandria.
„ 20	Hinckley—Gasholder, &c.	Urban District Council	F. Lee, Engineer, Gasworks, Hinckley.
„ 22	Hebden Bridge, Yorks—Electrical Plant	Urban District Council	W. Emmott, 25 Commercial Street, Halifax.
„ 22	Windygates and Balcurvie, Scotland—Waterworks	Fife County Council	W. D. Sang, Engineer, Kirkcaldy.
„ 22	Blackpool—Laying Tramways	Tramways Committee	J. S. Brodie, Borough Engineer, Town Hall, Blackpool
„ 22	Clacton-on-Sea—Electrical Plant	Urban District Council	W. H. Trentham, 39 Victoria Street, Westminster, S.W.
„ 22	Perth, Western Australia—Rubbish Destructor	City Council	Agent-General for Western Australia, 15 Victoria St., Westminster.
„ 22	St. Helens, Lancs—Precipitation Tanks, &c.	Health Committee	G. J. C. Broom, Borough Engineer, Town Hall, St. Helens.
„ 23	Brighton—Tramroads, &c.	Town Council	F. J. C. May, Borough Engineer, Town Hall, Brighton.
„ 24	Blackpool—Overhead Equipment	Elec. & Tramways Committee	Borough Electrical Engineer, West Caroline Street, Blackpool.
„ 27	Cairo—Bridge		Inspector of Irrigation, 1st Circle, Cairo.
„ 29	Devonport—Overhead Equipment	Corporation	C. Chadwell, 20 Victoria Street, Westminster.
„ 29	Cleethorpes, Lincs—Sea Wall, &c.	Urban District Council	E. Rushton, Engineer, Poplar Road, Cleethorpes.
„ 31	Dorking—Sewerage Works	Rural District Council	W. Rapley, Jun., Surveyor, Clovelly, Tower Hill, Dorking.
Jan. 2	Sunderland—Boiler	Corporation	J. F. C. Snell, Borough Electrical Engineer, Town Hall, Sunderland.
„ 5	Falmouth—Pier Improvements	Town Council	L. G. Mouchel, 38 Victoria Street, Westminster.
„ 6	Teignmouth—Gasworks Extensions, &c.	Urban District Council	J. A. Gray, Gas Engineer, Teignmouth.
„ 10	Downpatrick—Cooking Apparatus at Asylum		Graeme-Watts and Tulloch, 77A Victoria Street, Belfast.
„ 15	Egremont, Cheshire—Electrical Plant	Wallasey U.D.C.	J. H. Crowther, Engineer, Great Float, near Birkenhead.
Feb. 26	Bulawayo, Rhodesia—Electric Tramway	Municipal Council	Davis & Soper, 54 St. Mary Axe, E.C.
	IRON AND STEEL:		
Dec. 18	Cardiff—Tools	Tramways Committee	A. Ellis, Borough Elec. Engr., Central Offices, The Hague, Cardiff.
„ 18	Leicester—Ironwork, &c.	Corporation	E. G. Mawbey, Borough Engineer, Town Hall, Leicester.
„ 20	Wingate Grange, Durham—Colliery Stores	Colliery Owners	W. Fleetham, Cashier, Wingate Grange Colliery, Durham.
„ 20	Bradford—Stores	Corporation	Tramway Offices, 5 Forster Square, Bradford.
„ 20	Burnley—Steam Piping	Health Committee	G. H. Pickles, Borough Surveyor, Town Hall, Burnley.
„ 22	London, S.W.—Rails	London County Council	Engineer's Department, County Hall, Spring Gardens, S.W.
„ 23	Warrington—Grates, Mantles and Kitchen Ranges	Health Committee	T. Longdin, Borough Surveyor, Town Hall, Warrington.
„ 24	Garforth, near Leeds—Colliery Stores	Colliery Owners	Owners of Garforth Colliery, near Leeds.
„ 27	King's Lynn—Stores	Corporation	H. J. Weaver, Borough Engineer, King's Lynn.
Jan. 1	Grantown, Scotland—Iron Fencing		D. Grant, Solicitor, Grantown.
„ 15	Ottawa—Rails		L. K. Jones, Secretary, Department of Railways, Canals, Ottawa.
Feb. 6	Cape Town—Locks		Agent-General for Cape Colony, 100 Victoria Street, S.W.

Complete List of Contracts Open — *continued*

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDERS MAY BE OBTAINED.
	PAINTING AND PLUMBING:		
Dec. 18	Leicester—Brushes	Corporation	E. G. Mawbey, Borough Surveyor, Town Hall, Leicester.
„ 18	Leicester—Oils, Paints, Varnish, &c.	Corporation	E. G. Mawbey, Borough Surveyor, Town Hall, Leicester.
„ 20	Edinburgh—Oils, Varnishes, Paints, &c.		Mr. Gray, Steward, Royal Edinburgh Asylum for the Insane.
„ 22	Leeds—Painting, &c.	Corporation	City Engineer, Leeds.
„ 22	Nottingham—Plumbers' and Glaziers' Work	Corporation	W. Smith, Estates Surveyor, Guildhall, Nottingham.
	ROADS AND CARTAGE:		
Dec. 18	Leicester—Materials	Corporation	E. G. Mawley, Borough Engineer, Town Hall. Leicester.
„ 18	London, W.—Making-up Roads	Ealing Town Council	C. Jones, Borough Engineer, Town Hall, Ealing, W.
„ 18	Trowbridge—Steam Rolling and Scarifying	Urban District Council	H. G. Nicholson-Lailey, Town Surveyor, Town Hall, Trowbridge.
„ 19	Frinton-on-Sea, Essex—Levelling, &c.	Urban District Council	P. O. Macdonald, 1 Old Road, Frinton-on-Sea.
„ 21	Sleaford, Lincs—Granite	Rural District Council	E. Clements, 74 Southgate, Sleaford.
„ 22	London, S.E.—Street Works	Penge U.D.C.	H. W. Longdin, Surveyor, Town Hall, Anerley.
„ 22	Blackpool—Granite Paving Cubes	Tramways Committee	J. S. Brodie, Borough Engineer, Town Hall, Blackpool.
„ 22	London, N.—Making-up Streets	Edmonton U.D.C.	G. E. Eachus, Engineer, Town Hall, Lower Edmonton.
„ 22	Meriden, near Coventry—Granite	Rural District Council	A. Seymour, 11 Priory Street, Coventry.
„ 22	Hindley, Lancs—Street Works	Urban District Council	A Holden, Surveyor, Council Offices, Hindley.
„ 22	Ebbw Vale—Road	Urban District Council	T. J. Thomas, Surveyor, Council Offices, Ebbw Vale.
„ 27	Tottington, Lancs—Street Works	Urban District Council	L. Kenyon, Surveyor, Council Offices, Tottington
„ 29	West Hartlepool—Street Works	Corporation	J. W. Brown, Borough Engineer, West Hartlepool.
„ 30	Sale—Street Works	Urban District Council	W. Holt, Engineer, Council Offices, Sale.
„ 30	New Malden—Team Labour	Urban District Council	T. V. H. Davison, Engineer, Council Offices, New Malden.
„ 31	Erdington, near Birmingham—Road Works	Urban District Council	H. H. Humphries, District Engineer, Public Hall, Erdington.
„ 31	Horsham, Sussex—Road Materials and Cartage	West Sussex County Council	W. B. Purser, 4 Worthington Road, Horsham.
Jan. 8	London, S.E.—Tar Paving, &c.	Southwark Union Guardians	G. D. Stevenson, 13 and 14 King Street, Cheapside, E.C.
„ 10	Dollar, Scotland—Causewaying	Town Council	Town Clerk, Dollar.
„ 27	Capetown—Streets		Davis & Soper, 54 St. Mary Axe, E.C.
	SANITARY:		
Dec. 18	Leicester—Sewers, &c.	Highways & Sewerage Comm.	E. G. Mawbey, Borough Engineer, Town Hall, Leicester.
„ 18	Caversham—Sewers, &c.	Urban District Council	S. P. Andrews, 22 Prospect Street, Caversham.
„ 19	London, W.—Removal of Refuse	St. Marylebone Borough Council	G Wilson, Town Clerk, Town Hall, St. Marylebone, W.
„ 20	Elgin—Sewer	Town Council	Burgh Surveyor, Greyfriars Street, Elgin.
„ 22	Manchester—Proto-Sulphate of Iron	Corporation	Secretary, Rivers Department, Town Hall, Manchester.
„ 22	Bolton—Emptying Ashpits	Corporation	R. G. Hinnell, Town Clerk, Town Hall, Bolton.
„ 23	Walthamstow—Sewer	Urban District Council	G. W. Holmes, Engineer, Town Hall, Walthamstow.
„ 27	King's Lynn—Stoneware Pipes and Disinfectants	Corporation	H. J. Weaver, Borough Engineer, King's Lynn.
Jan. 5	Watlington, near Henley-on-Thames—Sewers	Henley R.D.C.	J. Taylor, Sons and S. Crimp, 27 Great George Street, Westminster.
	TIMBER:		
Dec. 18	Leicester—Timber	Corporation	E. G. Mawbey, Borough Engineer, Town Hall, Leicester.
„ 20	Wingate Grange, Durham—Timber	Colliery Owners	W. Fleetham, Cashier, Wingate Grange Colliery.
„ 20	Bradford—Poplar Wood Blocks	Corporation	Tramway Offices, 5 Forster Square, Bradford.
„ 20	Edinburgh—Wood		Mr. Gray, Steward, Royal Edinburgh Asylum for the Insane.
„ 22	Leeds—Timber	Gas Committee	R. H. Townsley, General Manager, Gas Offices, Leeds.
„ 24	Garforth, near Leeds—Timber	Colliery Owners	Owners of Garforth Colliery, near Leeds.
„ 27	King's Lynn—Timber	Corporation	H. J. Weaver, Borough Engineer, King's Lynn.
Jan. 6	Strabane, Ireland—Fences and Gates	Rural District Council	J. E. Sharkie, Clerk Council Offices, Strabane.

List of Competitions Open.

DATE OF DELIVERY.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Dec. 18	Durban, Natal—Town Hall, Library, Museum, &c.	£500, £300, £200.	W. H. Radford, Albion Chambers, King Street, Nottingham.
„ 31	Ashton-in-Makerfield—Infectious Diseases Hospital	Urban District Council	T. Burgess, Surveyor, Council Offices, Ashton-in-Makerfield.
Jan. 15	Kingston-on-Thames—Cottage Homes for Children	£25, £15, £10.	J. Edgell, Clerk to Guardians, Coombe Lane, Kingston-on-Thames.
„ 20	Workington—Public Library	£25, £15, £10.	W. L. Eaglesfield, Borough Surveyor, Workington.
„ 31	Cape Town—University Buildings	£400, £200, £100.	Agent-General for the Cape of Good Hope, London.
„ 31	Hull—Town Hall Extension	£300, £200, £100.	E. Laverack, Town Clerk, Town Hall, Hull.
Feb. 13	Patras, Greece—Church	£400, £160, £80.	Committee for new Church of St. Andrew, Patras, Greece.
„ 28	Bridgwater—Appliances for Silt Disposal		W. T. Baker, Town Clerk, King Square, Bridgwater.
No date	Motherwell—Public Library, &c.		J. Burns, Town Clerk, Motherwell.

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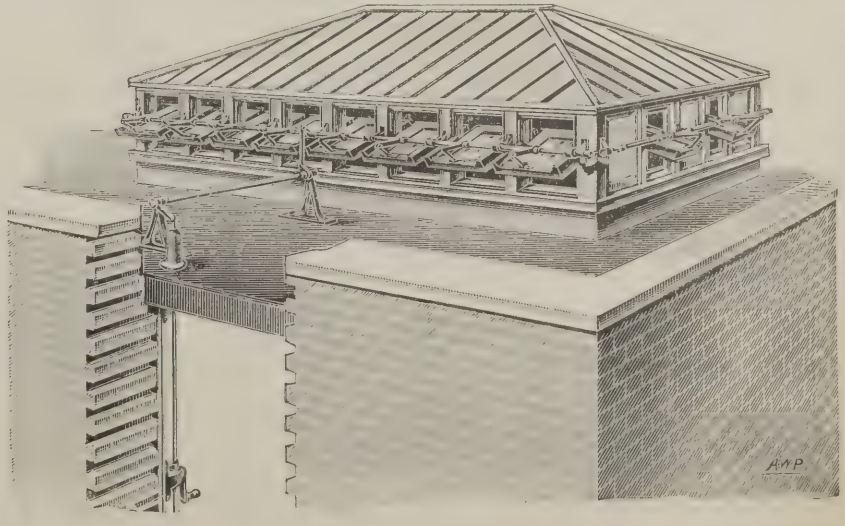
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Tenders.

Information from accredited sources should be sent to "The Editor" at latest by noon on Monday if intended for publication in the following Wednesday's issue. Results of Tenders cannot be accepted unless they contain the name of the Architect or Surveyor for the work.

Addressed postcards on which lists of tenders may be stated will be sent post free on application to the Manager, BUILDERS' JOURNAL, *Effingham House, Arundel Street, Strand, W.C.*

Bristol.—For the erection of a carpet-beating warehouse, office, &c., in Station Road, Montpelier, for Mr. George Pearce, upholsterer, &c. Mr. Thomas Scammell, F.S.I., architect and surveyor, Bristol:—

C. A. Hayes	£879	J. Eastabook & Sons	£695
J. E. Jones	800	A. E. Denby & Co...	599
T. Hatherly	727	Wilkins & Gosling*	590
H. Edmunds	690		

* Accepted. [All of Bristol.]

Bishop Auckland.—For the erection of the No. 2 isolation hospital buildings at Helmington Row, midway between Willington and Crook, as follows:—Administrative block, main pavilion, isolation pavilion, porter's lodge and out-bathing block, laundry and disinfecting block, covered ways, boundary walls and fences, water-supply, drainage roads, &c., for the Auckland, Shildon and Willington Joint Hospital Board. Mr. William Perkins, architect, Victoria Street, Bishop Auckland:—

M. D. Ayrton, Tow Law	£10,280	0	0
T. & J. White, Newcastle-on-Tyne	10,265	0	0
G. Westgarth, Walsingham	9,667	5	9
W. Hudson, Bishop Auckland	9,511	15	11
J. C. Nichol, South Shields	9,440	0	0
G. H. Bell, Bishop Auckland	9,396	0	0
T. Manners, Bishop Auckland	9,657	9	0
Walton Brothers,* Crook	9,060	0	0

* Accepted.

Castlebar (Ireland).—For the erection of a new residence for the chief medical officer at the Castlebar District Lunatic Asylum:—

J. Clarence, Ballisodare, Sligo	£2,200	0	
J. Ryan & Son, Thomas Street, Limerick	2,053	0	
R. Mellon, Brighton Square, Rathgar, Dublin	1,985	0	
F. Moore,* Morecambe	1,850	15	

* Accepted.

Croydon.—For the erection of a pair of houses at Eden Road, Croydon. Mr Frank Windsor, architect and surveyor, Bank Buildings, 1 High Street, Croydon:—

Messrs. Bulled & Co.	£1,627
F. Knight	1,500
Messrs. Huntley Brothers	1,390
W. Potter	1,390
W. E. Barnes	1,350
Messrs. Smith & Sons	1,328
E. J. Saunders*	1,300

* Accepted.

Devonport.—For the erection of a special school, Exmouth Road, Stoke, for the Devonport School Board. Messrs. Hine & Odgers, architects, Lockyer Street, Plymouth:—

Roach & Lovell, Plymouth	£3,017
Paynter, Plymouth	2,445
Jenkin & Son, Devonport	2,440
Matcham & Co, Plymouth	2,414
A. Andrews, Plymouth	2,330
Allen, Devonport	2,250
W. E. Blake, Plymouth	2,193
Lethbridge & Son, Plymouth	2,185
Wakeham Brothers, Plymouth	2,181
A. N. Coles, Plymouth	2,089
Richards, Plymouth	2,080
Crockerell, Devonport	2,015
T. May,* Plymouth	1,968

* Accepted.

Dover.—For paving, forming and draining the extended portion of Beaconsfield Road; also building a steel bridge, with retaining walls and other works in connection therewith, for the Town Council. Mr. Henry E. Stilgoe, A.M.I.C.E., borough engineer, Maison Dieu House, Dover:—

H. Richardson, Dover	£2,200	0	0
W. & E. Noakes, Eastbourne	2,178	0	0
G. Munro, Dover	1,885	3	7
E. Stokes,* London Road, Dover	1,731	0	0

* Accepted.

Frinton-on-Sea.—Accepted for alterations and additions to "Ivansville," for J. V. Vesey Fitzgerald, Esq., K.C. Messrs. Harrington, Ley & Tomkins, architects, Frinton-on-Sea, and 65 Bishopsgate Street Without, E.C., and Romford:—

D. Collins	£250

Frinton-on-Sea.—Accepted for the erection of a detached house, for Dr. G. C. Bell. Messrs. Harrington, Ley & Tomkins, architects, Frinton-on-Sea, Essex:—

D. Collins	£740

Frinton-on-Sea.—For the erection of a detached house, for A. West, Esq. Messrs. Harrington, Ley & Tomkins, architects, Frinton-on-Sea, Essex:—

P. Oxley	£690	D. Collins	£585
M. Moore	680	C. Mills	575
E. West	615		

London.—For the erection of a police station at Molyneux Street. Mr. J. Dixon Butler, police surveyor:—

	Credit.
Killby & Gayford	£19,700
C. Ansell	19,548
F. & H. F. Higgs	19,500
Lascelles & Co.	19,177
Clarke & Bracey	18,970
Grove & Sons	18,830
C. E. Allen	18,750
Holloway Brothers	18,650
Lathey Brothers	18,576
B. E. Nightingale	18,339
Ashby & Horner	18,251
H. Lovatt	18,000
Higgs & Hill	17,894
Lawrance & Sons	17,771

£50 / 75 / — / 50 / 60 / — / 100 / 40 / — / — / 200 / 10 / —

Mongewell (Oxon).—For the erection of a school and teacher's house at Mongewell, Oxon, for the School Board of Mongewell and North Stoke. Messrs. Hoare & Wheeler, architects. Quantities by Messrs. Henry Cooper & Son, Reading:—

H. Godwin	£2,172	0	0
Cooper & Son	1,876	0	0
H. Bowden	1,872	0	0
McC. E. Fitt	1,778	0	0
J. Smallbone	1,772	0	0
Brasher & Son	1,751	7	7
Boxall & Son	1,749	0	0
Bosher & Son	1,587	17	8
J. Cox,* Stokerow	1,575	12	0

* Accepted.

Sleaford, Lincs.—For new schools for the Governors of Carris Grammar School. Mr. Jesse Clare, architect, Sleaford. Quantities by the architect:—

W. M. Pattinson & Son, Ruskington	£2,553
Berry & Clay, Sleaford	2,326
J. Guttridge, Peterborough	2,196
F. Pattinson, Ruskington	2,191
J. J. Banks, Sleaford	2,005
W. H. Maxey & Sons,* Sleaford	1,948
Parker & Son, Boston	1,929

* Accepted.

Southwick (Sussex).—For the work of sewering, levelling, paving, metalling, flagging, channelling, and making good the roads known as Victoria Road and a part of Cross Road Southwick, Sussex, for the Southwick Urban District Council. Mr. George Walter Warr, surveyor:—

H. A. Chambers, 2 New Steine, Seaford	2,145
J. & T. Binns, Wellesley Road, Croydon	1,572
J. Whittington,* Underdown Road, Southwick	1,499
J. Meston, St. Mark's Road, North Kensington, W.	1,492

* Accepted.

Walton-on-the-Naze, Essex.—Accepted for schoolroom, &c, to the Congregational Church, Walton-on-the-Naze. Mr. William Hayne, architect, Frinton-on Sea:—

Philip G. Oxley, Walton-on-Naze	£745

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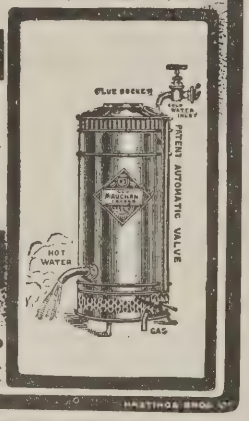
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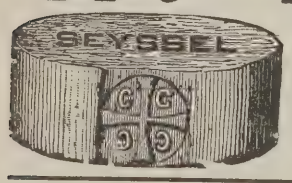
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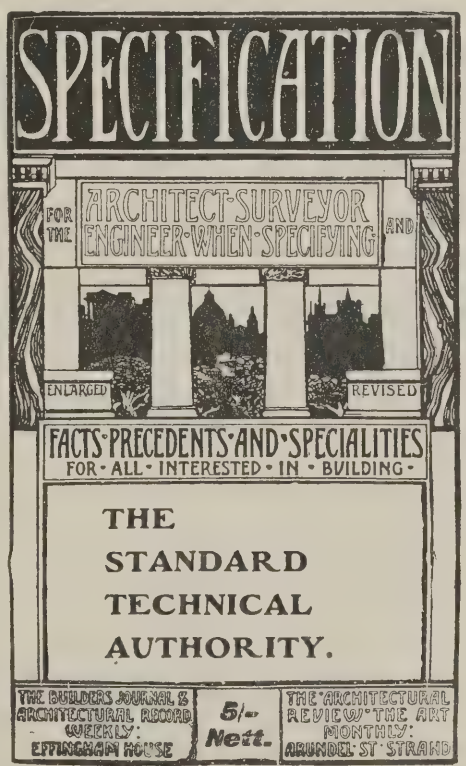
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TENDERS—*cont.*

Newmarket.—For additional stabling, Lagrange House, Newmarket, for Mr. George Blackwell. Messrs. Heaton & Gibb, M.S A., architects, Newmarket:—

Foster & Dicksee	£6,555	Kerridge & Shaw	£5,695
H. J. Linzell	5,777	J. G. Cowen*	5,682
A. J. Bateman	5,777	F. Newton	5,653

* Accepted.

Netherne (near Coulsdon).—For the foundations of a road about 1,600yds. long on the asylum estate at Netherne, near Coulsdon, for the Surrey County Council. Mr. George T. Hine, architect, 35 Parliament Street, Westminster:—

Streeter Brothers, East Croydon	£4,383 4 2
H. Willcock & Co., Upper Warlingham	4,280 3 4
Lawrence & Thacker, Clapham Common, S.W.	4,154 15 0
W. Adamson, Kingston	3,975 3 4
E. Parry & Co., Putney	3,844 0 0
C. Mott & Sons, Staines	3,622 17 11
A. C. Soan, Streatham	3,533 4 10
W. Cunliffe, Kingston	3,391 2 6
W. L. Meredith & Co., Ltd., Gloucester	3,380 0 0
J. G. Pickard, Sussex	3,319 0 0
E. Iles, Mitcham, Surrey	3,246 0 0
E. B. Yewen. Croydon, S.E.	3,173 11 8
T. Adams, Wood Green	3,111 16 8
J. & T. Binns, Croydon	3,111 3 4
J. Meston, North Kensington, W.	3,076 15 10
C. Ford, Harlesden, N.W.	2,955 0 0
J. May, Ashstead, Surrey	2,900 0 0
J. T. Trueman, Swanley	2,882 0 0
D. H. Porter, London, N.E.	2,849 0 0
S. Kavanagh & Co.,* Surbiton Hill	2,763 1 8
Practical Landscape Gardening and Estate Development Company, London, S.W.	2,642 10 10
Ditto. (chalk)	2,162 10 10

* Accepted.

Oxford.—For the erection of a pair of cottages at Cowley, Oxford, for the trustees of the Prince Christian Victor Memorial. Mr. Herbert Quinton, architect, 22 George Street, Oxford. Quantities by the architect:—

Lingerlee & Sons	£1,087	Benfield & Loxley	£896
Brucker Brothers	1,066	J. Wooldridge	814
Knowles & Son	990	W. H. Gray	736

[All of Oxford.]

Reigate.—For the laying of stoneware sewers, together with manholes, inspection shafts, flushing tanks, screen chamber, and outfall works, to be constructed in Horley, in the county of Surrey, for the purpose of the extension of the main drainage of the district, for the Reigate Rural District Council. Messrs. John Taylor, Sons & Santo Crimp, engineers, 27 Great George Street, Westminster:—

M. S. Kitteringham, Waltham Cross	£4,715 17 6
J. & T. Binns, Croydon	3,715 2 6
A. G. Osenton, Tilehurst, Reading	3,715 0 0
Haslemere Builders, Ltd., Haslemere	3,485 10 0
Turnbull & Co., Horley	3,414 7 0
E. Iles, Mitcham	3,250 0 0
F. W. Trimm, Eastleigh	3,067 0 0
J. S. Pickard, Turner's Hill	2,992 0 0
J. Meston, North Kensington	2,849 11 0
H. Robert, Hoarwithy, Ross	2,767 2 0
G. R. Mann, Edgware, Middlesex	2,698 17 3
Johnson & Langley, Leicester	2,694 17 10
G. Bell, Tottenham	2,598 0 0
C. Ford, Harlesden	2,558 0 0
G. G. Rayner, Croydon	2,518 15 11
Streeters & Todhunter, Godalming*	2,465 0 0

* Accepted.

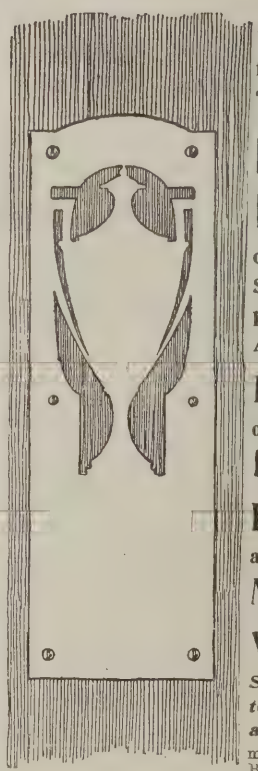
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		£ s. d.	£ s. d.
FORAGE.			
Beans	per qr.	1 15 0	2 0 0
Clover, best	per load	4 10 0	5 0 0
Hay, best	do.	4 15 0	5 10 0
Sainfoin mixture	do.	3 15 0	4 15 0
Straw	do.	1 8 0	1 18 0
OILS AND PAINTS.			
Castor Oil, French	per cwt.	1 3 11	—
Colza Oil, English	do.	1 3 9	—
Copperas	per ton	2 0 0	—
Lard Oil	per cwt.	2 13 0	2 14 0
Lead, white, ground, carbonate	do.	1 4 10	—
Do. red	do.	1 0 4½	—
Linseed Oil, barrels	do.	1 4 3	—
Petroleum, American	per gal.	0 0 6	0 0 6½
Do. Russian	do.	0 0 4½	0 0 4½
Pitch	per barrel	0 7 0	—
Shellac, orange	per cwt.	6 6 0	—
Soda, crystals	per ton	3 2 6	3 5 0
Tallow, Home Melt	per cwt.	1 10 0	1 11 0
Tar, Stockholm	per barrel	1 1 6	—
Turpentine	per cwt.	1 18 10½	—
METALS.			
Copper, sheet, strong	per ton	65 0 0	—
Iron, Staffs., bar	do.	6 5 0	8 10 0
Do. Galvanised Corrugated sheet	do.	11 10 0	11 12 6
Lead, pig, Soft Foreign	do.	10 15 0	10 17 6
Do. do. English common brands	do.	11 0 0	—
Do. sheet, English 3lb. per sq. ft. and upwards	do.	13 10 0	—
Do. pipe	do.	14 0 0	—
Nails, cut clasp, 3in. to 6in.	per ton	9 5 0	—
Do. floor brads	do.	9 0 0	—
Steel, Staffs., Girders and Angles	do.	5 15 0	6 5 0
Do. do. Mild bars	do.	6 10 0	7 0 0
Tin, Foreign	do.	114 10 0	115 0 0
Do. English ingots	do.	115 0 0	117 0 0
Zinc, sheets, Silesian	do	24 0 0	—
Do. do. Vieille Montaigne	do.	24 0 0	—
Do. Spelter	do.	19 17 6	20 2 6
TIMBER.			
SOFT WOODS.			
Fir, Dantzic and Memel	per load	1 13 0	3 0 0
Pine, Quebec, Yellow	per load	5 5 0	6 5 0
Do. Pitch	do.	3 0 0	3 4 0
Laths, log, Dantzic	per fath.	4 10 0	5 10 0
Do. Petersburg	do.	8 10 0	—
Deals, Archangel 2nd & 1st	per P.Std.	10 5 0	15 5 0
Do. do. 4th & 3rd	do.	10 5 0	15 10 0
Do. do. unsorted	do.	5 12 6	6 10 0
Do. Riga	do.	6 15 0	12 10 0
Do. Petersburg 1st Yellow	do.	16 10 0	—

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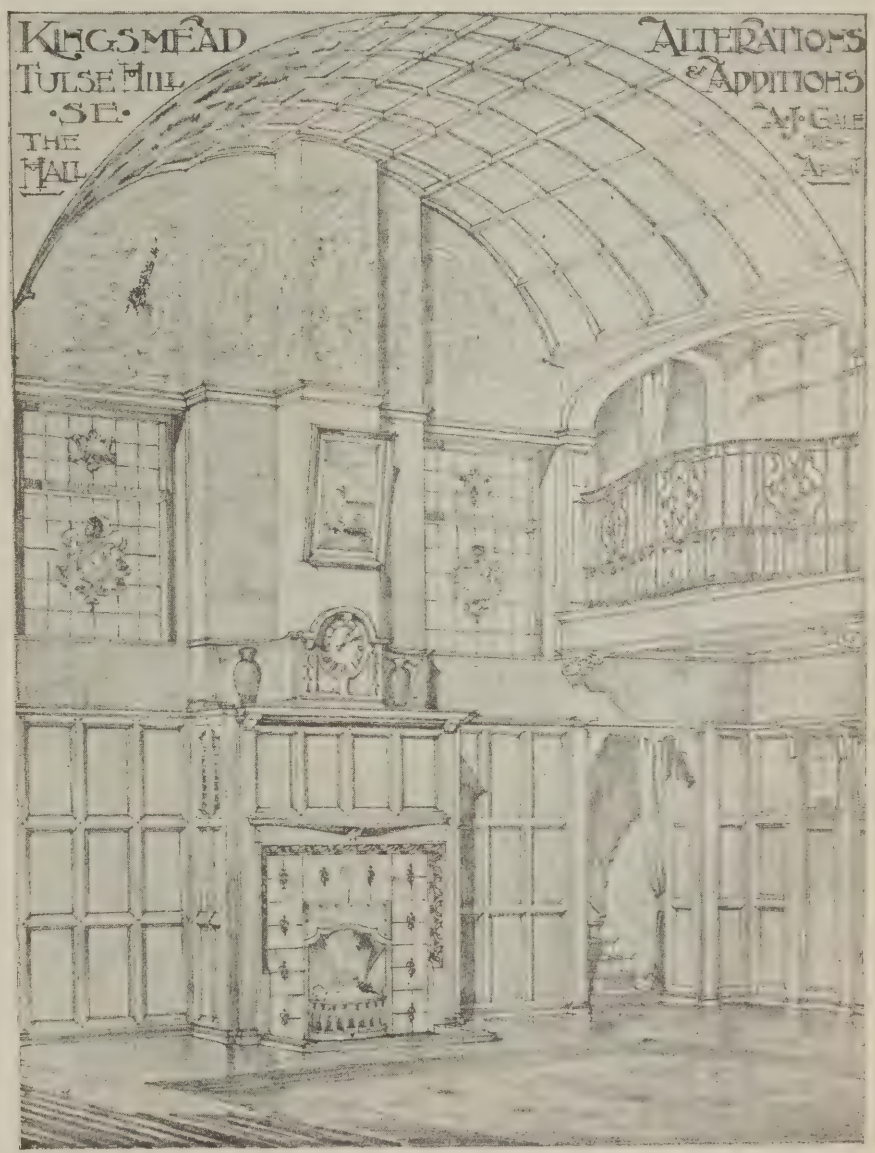
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To all our readers at home and abroad—a Merry Christmas and a Happy New Year.

An Architectural Causerie.

Mr. Poddles's Nephew.

MR. PODDLES was one of those men who take life quietly. There was nothing of the alarmist about him. He was fairly intelligent, a good eater, and, being an ordinary, honest, big-hearted sort of individual, was apt to mistake platitude for cleverness and real cleverness for eccentricity; consequently he measured most things by "sound common-sense." Sitting by the fire at Christmas time, alone, with work finished and dinner digested, in that dozy mood which fosters the kindest feelings, Mr. Poddles began to meditate on past and present. He was a tradesman who might have been an architect, and that recollection never failed to conjure great deeds before his mental eyes. "Yes. It was a strange chance that made me what I am and passed by the architect in me. Brown wanted a shop-boy and Dilliwag an office-boy, and there was I, a short-trousered ambition, a might-have-been lost to architecture because the grocer offered a shilling a week more; I who might have been an architect of . . . ."—"Why, my dear old uncle, you in the fire-light here alone and talking to yourself!" Mr. Poddles had not heard his nephew come in and was rather startled for the moment. "Ah! it's you, my boy. Well, well, you've put an end to my dreaming. I was thinking of architecture and what glory fell on those that practise it. Now, my boy, you are in an architect's office Tell me about it—how you spend your time—what your principal does—and all the rest."—"Well, to begin with," said this wonderful nephew, "our principal insists that we shall not overwork ourselves. Of course, if we architects' assistants had our own way, we should be waiting on the office mat soon after daybreak and should keep hard at work—and we *do* work—till late in the evening, with just a breathing space at breakfast time and another for a snack of dinner. We are so full of great ideas, so magnificent in our conceptions, that if only our principal allowed us to we should produce immense quantities of the finest architecture ever dreamed of. But he says, 'No, that would never do—the world could not withstand such a burst of genius, and so much of it. You must wait till things are ripened. Moreover, your health and personal beauty are matters of great consequence.'



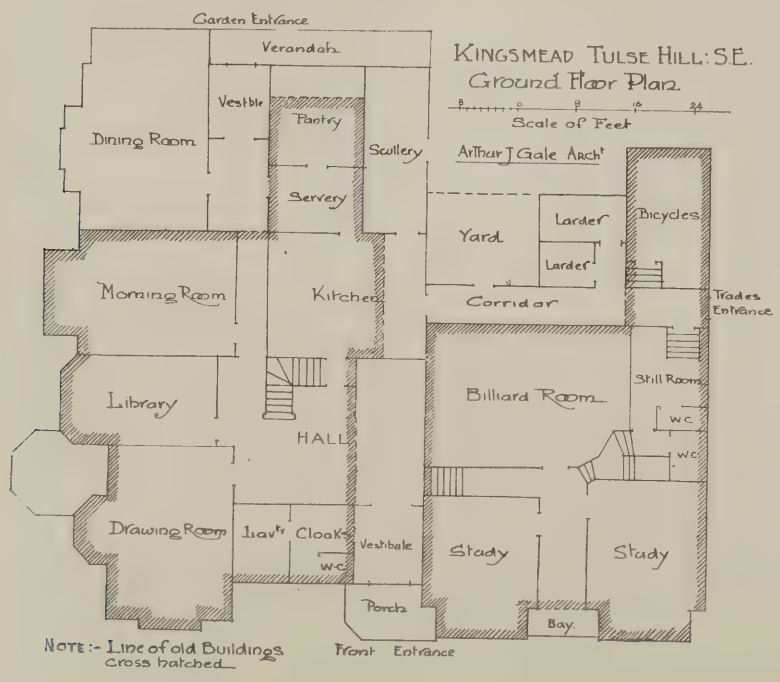
So, being a rich man himself, he has provided for each assistant a private brougham and set aside a yearly bonus towards food and raiment. Thus you see our silken clothes, bedecked with lovely ornament, diamond jewellery, fur-lined coats for winter, tooled-leather boots, and everything else that befits our angelic condition. When we arrive at the office in the morning—no definite hour is stipulated and if we do not feel quite in the mood for work we may stay away—a boy in buttons throws open a roll of carpet for our path and says 'Good morning, sir. Your orders.' We then proceed through scented courts to the Hall of Gemista—which is the celestial plural denoting pearls of great price, *i.e.*, architects' assistants. Here sundry footmen attend on us. We must never hurry, and nothing must be permitted to worry us, else our heavenly dreams of architecture be spoiled. Then, at last, we sit down to work at a gold-bound drawing-board, with instruments studded with jewels, and do just so much as we are moved by the spirit within. In silent glory we take a crayon between our fingers and then the Great Idea slowly shapes itself as the lovely lines are drawn. There at last, in all the glory which human hands can conceive, is the finished design, there the embryo of the future. That is our mission. We are forerunners of *The* Style. Mere building we leave to baser clay—contractors, engineers and the like. Our principal is the pioneer in a new system of training. These are his methods. He alone appreciates that architects' assistants are no ordinary beings and that if treated as such—which, alas for architecture, is universal—their spirit is crushed and their imaginings bricked in. Moreover, he believes that clothes have a proportionate influence on design, so that the finer clothed we are the finer will be our designs. And, in addition, he is splendidly cognizant of the effect of diet. Each style has its own food.

Just as men will be made sots by eating certain things, so are angels made by a different diet. When we are engaged on a Classical design we eat this, and that when our spirit turns to Gothic, and a mixture of both when we work in both styles. This is the secret of all true architecture, a secret that was handed down from father to son in past ages, and has now, after centuries of anxiety, been recovered. The beauty of the old buildings was not due to circumstance, material, time or art—it was due to food: hence the connection between the word 'hotch-pot' and modern architecture. The world, of course, is ignorant of the fact and consequently regards our principal as mad: whereas in reality it is he alone that holds the great secret. But there is this strange result. His system is so far ahead of the present day that many of our conceptions cannot be carried out. We, too, are ahead of our time. In that cultured state of sublime meditation which the surroundings create, when the sordid conditions of building are swept aside by the Idea, when our holy brains transmute their architectural glories into realities on paper—through the humble medium of an HB pencil—in such an elevated state as this it is only to be expected that many of our designs cannot be built to-day. The ordinary mind cannot comprehend them—asks how towers are to be supported, arches to be constructed, walls bonded, and other irrelevant questions—but we know that this is the Architecture of the Future. Hence our state. Moreover the system is one that prevents all insanity among architects' assistants. What a vast number of these poor creatures have been driven mad by the mere mention of a rise in their salaries or the suggestion of four days' holiday at Christmas time! Could we expect any other result? Now with us, of course, no such things could happen, for, as I have said, we are never troubled about money, food, clothes or work."—"Stay, my boy," said Mr. Poddles. "You will get better. But you must come with me to the doctor at once." Mr. Poddles quietly led his nephew away. The doctor looked at him, felt his pulse, examined him, then whispered in Mr. Poddles's ear, "An attack of mental aberration, due to lack of work and excess of comfort. What is he?"—"An architect's assistant."—"Oh! that explains it." Then they went home, Mr. Poddles feeling that perhaps, after all, it was well he had been the grocer's boy.



SARNESFIELD CHURCH.

"Kingsmead," Palace Road, Tulse Hill, S.E.—This house as it now stands is the result of the combination of two old houses with extensive additions, and a feature has been made of the hall illustrated on the preceding page. The segmental ribbed ceiling has been constructed with a top light, and the hall and vestibule are panelled throughout in pine, finished with a dark walnut stain. The lower ceilings are treated with Lincrusta in low relief, and intersected by the panelled soffits of the necessary beams. The decorative work has been executed by Messrs. Holloway Brothers, of Lambeth, a completion of the structural work previously executed by Mr. C. B. Core, of Dulwich, the whole under the superintendence of the architect, Mr. Arthur J. Gale, F.R.I.B.A., F.S.I.



IN THE WELSH MARCHES.—I.

By CHARLES G. HARPER.

A TIME is at hand when the architectural student, having become bored by familiarity with the more accessible architectural sketching-grounds of England, will take his courage in his hands and adventure into the districts never visited by societies and associations that concern themselves with his education in the ways of our forefathers. This is not to say that the Marches of Wales have never been discovered by the architect; but these districts are so remote, and so badly served by the merely branch lines of railway that run through them, that they have been practically inaccessible to the professional man whose vacation is not of very long duration. I say they *have* been, because, in these days of the perfected or nearly perfected bicycle they need be so no longer to anyone who can mount a cycle. I know perfectly well that to the stranger the very sound of the name the "Welsh Marches" will seem to indicate bad and hilly roads; but, if you will take the word of one who has been over all these districts awheel, I can assure you that Middlesex itself has not flatter gradients nor such good surface. For here we are not in Wales itself but in the rich debatable lands between England and the Principality—lands which lie in the several valleys of the rivers Wye, Lugg and Teme, within sight of the Welsh mountains, indeed, but themselves level or undulating.

The character of this flat, alluvial soil, once covered with noble forests, has duly left its mark on the ancient architecture, domestic and ecclesiastical, and the timbered construction of the old manor-houses and cottages alike is eloquent of long by-past conditions. Herefordshire, in fact, is quite as notable for its black-and-white houses as Cheshire; and, indeed, produced in the early seventeenth century an architect who, although his fame has perhaps been allowed to languish during the last generation or so, was the greatest master of architecture in this sort ever known.

Little has come down to us of the personal characteristics of John Abel, the "King's Carpenter," as he was called, and a brutal Early Victorian vandalism made havoc with his lovely timbered town halls of Brecon, Hereford, Kington and Weobley; but that of Leominster is still in existence (although on a new site and adapted to a different purpose),

and the great church of Abbey Dore has still evidence to show of his commanding genius in his special material—wood.

Hereford city, from whose precincts it may be well to start on this exploration, has still a specimen of his work, although nearly everything else of antiquity in its streets has been ruthlessly swept away to give place to modern red brick. How thoroughly this demolition has been applied may actually be judged by the very name given to this building—"Hereford Old House" it is called. Built in 1621, it stands in the middle of the city, and is now occupied by Lloyd's Bank. It was restored in 1882.

Our route will take us past White Cross, under the hills of Foxley, to Sarnesfield, an insignificant place so tiny that, beyond Sarnesfield Court, the vicarage and the church, there is absolutely nothing. I wish, however, to conduct you hither for two

Build they who list, or they who wist, for he can build no more.
His house of clay could hold no longer,
May Heaven's joy frame him a stronger."
JOHN ABEL.

"*Vive ut vivas in vita æternam.*"

Will no one, for the sake of the profession of architecture and for the memory of Abel, restore this neglected tomb?

Weobley I have called the most picturesque village in Herefordshire, and there can be no manner of doubt that it is so. The house therein that is neither ancient nor timbered is the exception, and the long line of rambling street, with the unusual feature (for Herefordshire) of a tall spire of the church in the distance, is entirely pleasing (see p. 309). Only the place must be seen to be appreciated to the full. Neither photograph nor monochrome drawing could hope to give the measure of its delightfulness of colouring,

is actually too far gone in listlessness to be equal to the exertion of dying away altogether and so have done with it. When a house goes to decay it is not repaired but abandoned, and its ruins rot away and slowly return once more to their elements. Pembridge to the mere holiday-maker without appreciations might therefore seem to be a peculiarly depressing place; but I am not writing for such an one, and to those who can find it possible to "read between the lines" of this description it will be obvious that the place is worth visiting. The great church of Pembridge is eloquent of former prosperity. Such a building as this was not meant for a mere village. It would serve a town of about 5,000 inhabitants admirably, but is absurdly roomy for the Pembridge of to-day. One of its most striking features is the detached belfry that stands upon its north side, an octagonal building of timber based upon a



THE OLD HOUSE, HEREFORD; BUILT BY JOHN ABEL, 1621.

reasons: it is on the road to the most picturesque village in Herefordshire, and it is the burial-place of this great architect of whom I have been speaking. It *should* be a place of pilgrimage for every ambitious young fellow who has a spark of reverence in his composition; but it is not, for the simple reason that Abel's resting-place is probably quite unknown to ninety-nine of every hundred architects. The master died in 1674, aged 97, and lies under an altar-tomb in the little churchyard, between his two wives. He designed the covering slab, and sculptured it himself, with his effigy kneeling between the figures of the two women. T-square, compasses and other emblems of the profession are represented in relief, but all are sadly decayed, as also is the epitaph, of his own composition:—

"This craggy stone a covering is for an architect's bed,
Who lofty buildings raised high, but now lyes low his head:
His line and rule, so death concludes, are locked up in store,

nor even could any but the most inspired of efforts in oil or water-colour communicate its old-world air.

Dilwyn, two miles onward, has a picturesque church facing the road, with some excellent transitional Early English to Decorated tracery—as yet not meddled with—in its windows. The place may well have witnessed the wild flight of the Lancastrians after the battle of Mortimer's Cross, for we are here upon the verge of the plain where that encounter was fought out.

An absolutely flat road leads on to Pembridge, which presently comes into view: a decayed town, now scarcely even a village; the footpaths paved with the most portentous cobbles, and the roadway furrowed and ridged with the rains and snows of many years by-gone. Nobody cares about mending roads for such a bankrupt place as Pembridge, which, once a flourishing market town, now ekes out a decrepit existence without trade or any kind of commerce. It

foundation of stone and dating from the fourteenth century (see p. 310). Its interior has all the appearance of a barn, and consists of several entire tree-trunks carrying the roof, with an interlacing mass of timbers overhead supporting a heavy peal of five bells. Fortunately this interesting structure has been left untouched, and still remains among the most interesting of the very few detached belfries in England. The reasons that induced the old builders to occasionally depart from their usual practice of designing their belfries as integral parts of their churches are not always satisfactorily explained. Here the reason lies in the swampy and unstable character of the land so near the River Arrow; but in the examples of Talland and Gunwalloe, in Cornwall, where the foundations of the detached towers go down into the granite rock, we seek in vain for any such solution.

(To be concluded.)



PEMBRIDGE MARKET-HOUSE.

MANCHESTER SOCIETY OF ARCHITECTS.

Annual Dinner.

THE annual dinner of the Manchester Society of Architects was held at the Queen's Hotel on December 12th. Mr. Alfred Darbyshire, the president, in proposing "The Royal Institute of British Architects," said the Institute stood as the representative of British architects in the British islands, and it was a source of gratification and pride to him as a member of the profession to know that the King had admitted the fact by the knighthood he had conferred upon the past-president of the Institute.

The R.I.B.A. and Registration.

Mr. John Slater, vice-president R.I.B.A., replied. He said that while in recent years not so much had been heard of the vexed question of the compulsory registration of architects, many members of the profession, especially in the provinces, thought that a compulsory registration would be found a panacea for most of the evils from which architects and architecture were suffering. If registration were to come and be a success it could only be through the ranks of the Royal Institute. He was not altogether without hope that in the not far distant future some practical means of bringing that about would be found. With regard to the work and influence of the Institute, both had increased during the last year or two, and no one who had not sat at the Council of the Institute for some years could have the least idea of the enormous number of professional questions referred to that body. They had been consulted more than once lately by the Government and by public bodies with reference to matters of great public interest, and he was glad that that sort of spirit appeared to be gaining ground. The more municipalities and those who had to do with the architecture of buildings sought the advice of the local societies, the better it would be both for architecture and for the public. Architecture was a profession —or a business, if one preferred to call it so—but it was also one of the fine arts Treating it as such, no one could possibly exaggerate the influence on the younger generation when they were brought into contact with art and artistic matters at an early stage. Manchester had some most admirable Board schools, well built and well equipped in every way; but with regard to their interiors, the classrooms were not quite as beautiful as they might be, and it would be a good thing if the students at the Art School were encouraged to do something towards the beautification of the Board schools. This would be splendid practice for the art students, and the educational effect on the children of the Board schools would be really great.

Mr. J. W. Beaumont proposed "Technical Education," which was replied to by Sir James Hoy.

Colonel Eaton proposed "The Allied Societies," Mr. John Woolfall (president of the Liverpool Architectural Society) responding.

Mr. John B. Goss in proposing "The City Architect" expressed gratification that the Manchester Corporation were showing a practical interest in architecture, especially in helping to establish a Chair of Architecture. Mr. Henry Price, in response, said he felt himself justified in his position of city architect to condemn all ugliness, untruth and purely commercial architecture in any buildings in future to be erected by the City Corporation.

Mr. Edward Salomons gave the toast "The Victoria University and the Owens College." Mr. Alfred Hopkinson was to have responded, but was unable to be present. Mr. Salomons said that it had been expected that Mr. Hopkinson would have made some announcement in regard to the proposed appointment of a professor of architecture at Owens College. The appointment had not yet been made, but certain steps had already been taken towards making it.

Mr. William Goldthorpe, in proposing "The Manchester Society of Architects" said he remembered Manchester in 1851, and the vast difference for the better which he noticed in the appearance of the city was due largely to the efforts of their Society of Architects and to the education given to those who studied architecture. The president made a cordial response, in the course of which he said the Society was not only a prosperous one but was respected by "the powers that be"

Fourteen sets of designs for the students' monthly competition were on exhibition at the third sessional papers meeting of the Society held on December 11th. The subject was "A Cottage Hospital." The prize in the senior division was awarded to Mr. C. Birchenall and in the junior division to Mr. G. L. Cockrell, while Mr. T. H. Hill's design received honourable mention.

VAUXHALL BRIDGE.

American Opinion.

REFERRING to the proposed new bridge across the Thames at Vauxhall, the "American Architect" says:—

It is astonishing that a city like London should think of building, or rather of rebuilding, a great bridge without the aid of a trained artist. . . . In Paris, where all the permanent bridges except the railway viaduct are beautiful, and the last, the Alexander III. Bridge, is one of the most masterly examples of metalwork design in existence, or in St. Petersburg, where designs for two bridges have lately been thrown open to competition among architects of all nations; or in New York, where designs for new bridges must not only be made under the supervision of the very accomplished architect attached to the Bridge Commission, but must receive the approval of the Art Commission—the idea of giving an engineer licence to indulge his notions of the "Gothic" style in cast-iron in one of the most conspicuous bridges in the city would be received with universal protest; and it is strange that London should be contented with what the Muscovites and the Yankees repudiate. Even Boston, which possesses few bridges, and those of a very inconspicuous character, has been careful to commission an architect to advise in the design of a simple "rapid transit" bridge; while its park bridges, some of which are of considerable importance as engineering structures, are models of variety and beauty, having been designed by different architects selected for the purpose.

The Swansea Harbour Trustees are about to construct a new dock with a lock capable of accommodating the largest vessel afloat, and they have recently appointed as engineers to the undertaking Mr. P. W. Meik (of P. W. & C. S. Meik, Westminster) and Mr. A. O. Schenk, the present engineer to the harbour. The estimated cost of the works is nearly £2,000,000.

THE AMENDMENT OF THE LONDON BUILDING ACT.

At last week's meeting of the London County Council the Parliamentary Committee presented a report recommending the Council to approve the provisions of an amending Bill of the London Building Act of 1894. The proposals of the Bill may be summarized as follows :—

1. To require adequate means of escape from any new building, of which the level of the upper surface of any floor is of a greater height than 50ft. above the level of the footway, to be provided for persons employed or dwelling in or frequenting or resorting to any storey of such new building as may be above such height. (This constitutes an amendment of section 53 of the London Building Act, 1894, which provides for means of escape from the upper storeys of buildings of which the height, calculated in a similar manner, exceeds 60ft.)

2. Similarly to require means of escape to be provided before January 1st, 1908, in any existing building, other than a dwelling-house occupied by not more than one family, which exceeds the 50ft. limit as calculated above.

3. To require adequate means of escape from fire to be provided in any building or part of a building, not being a dwelling-house occupied by not more than one family in which sleeping accommodation for more than forty persons is provided, or in which more than forty persons are employed. (An amendment to substitute thirty for forty was adopted at the meeting.)

4. To amend section 74 of the Act of 1894 by making provision with regard to the walls, floors, or other structures which separate one building from another, or one set of rooms from other sets of rooms in the same or other buildings, and with regard to means of escape from buildings used partly for trade and manufacture and partly as dwelling-houses.

5. To make provision with regard to the construction of, and the materials to be used in the roof of a shop projecting beyond the main front of a building of which it forms part, and in which building persons are employed or sleep, and to require, unless other means of escape from fire are provided, a passage or passages to be constructed to form separate and direct means of communication between the street and the main building; and

6. To make provision with regard to the construction of lift shafts in buildings other than dwelling-houses occupied by not more than one family.

Mr. Stuart Sankey moved an amendment in the following terms:—

(*a*) In cases where any building within the meaning of this Act is situate within the City this Act shall be read as if the Corporation were named therein instead of the Council.



OLD HOUSES AT WEOBLEY, HEREFORDSHIRE.

(*b*) That this Act shall not apply to the City unless it be adopted by a resolution of the Common Council.

He complained that the Bill had been hurriedly framed by the Committee, and the result was that there had been no time to consult the City. They would have either to amend the Bill or to meet the opposition of the Corporation in the committee-room. The Committee of the Council had drafted a Bill of a drastic character, and to carry it out would cost hundreds and thousands of pounds. The whole measure had been hastily framed because of the fire in Queen Victoria Street.

Mr. Alderman Alliston seconded the amendment, because he thought that, if the City of London were exempted from the Bill at once, it would be better than fighting out the question in the House of Commons.

Dr. Longstaff, chairman of the Building Act Committee, said he could not detect a single argument in Mr. Sankey's speech which would not apply equally to districts outside the City.

Mr. Henry Clarke, the deputy chairmant said that Mr. Sankey did not wish that the Bill should be inoperative in the City He only desired that it should be put in force by the Common Council.

Mr. Burns said it would be a calamity to exempt the City from the operation of the Act. It would be contrary to the wishes of the jury at the Queen Victoria Street fire, and also to the views of Sir Homewood Crawford, who represented the City.

Mr. Sankey asked leave to withdraw his amendment, but the Council refused and demanded a division. On a show of hands there were only four in favour of the amendment. The Council then attempted to force a division, and, upon one being called, Mr. Sankey and Mr. Alliston left the council-chamber. As there were no tellers, the division was not taken. The recommendation of the Committee was then agreed to.



OLD SHOP AT PEMBRIDGE.

A very satisfactory report was presented by the Works Committee on the works completed during the half-year ending September 30th. It showed that on eighteen completed works there had been a saving on the final estimates of £9,629, equal to nearly 10 per cent.

The Council decided to refuse consent to the erection of an enclosed corridor across Freeman's Court, City, to connect No. 1 with the rear of 99, Cheapside. It was not considered expedient, the Building Act Committee stated, to consent to the erection of the proposed corridor across the public way, and, moreover, it would appear that the corridor would unite buildings contrary to the provisions of the Act.

Colwyn Bay Coronation Memorial Library Competition has been decided in favour of Messrs. Booth, Chadwick & Porter, of Manchester and Colwyn Bay.

Extension of Paddington Town Hall.—In lieu of erecting a new town hall, it is proposed to extend the present municipal building in Paddington, at a cost of £10,000, to meet existing requirements.



DETACHED TIMBERED BELFRY, PEMBRIDGE CHURCH.

Law Cases.

The Liverpool Cement Case.—The case of *Ingram and Clarke* v. *Holme and King, Ltd.*, recently came before Mr. Justice Walton and a special jury at the Liverpool Assizes. The plaintiffs (cement merchants) sought to recover from the defendants (contractors) £2,513 for cement sold and delivered. Defendants pleaded payment of one item of £32, and as to the others said the cement was to be supplied by the plaintiffs under a certain specification; that the cement and bags were not in accordance with the specification, and were thereupon rejected: that the cement was of a description not fit for the purpose for which it was intended, and that it was not the merchantable quality defendants required. Defendants counterclaimed, and on this the plaintiffs averred that they never saw the specification, that the cement was fit for the purpose supplied, and that it was not rejected as alleged by the defendants.—Mr. Pickford, K.C., in opening the case for the plaintiffs, said the whole matter arose out of the contract for the new reservoir of the Liverpool Corporation at Prescot, for which the defendants were the contractors. For the purpose of making that reservoir a very considerable quantity of concrete was required, and consequently a large quantity of Portland cement was needed. The defendants supplied the plaintiffs not with the whole of the specification but only such part of it as related to the cement, for which they were asking a subcontract from the plaintiffs. It was not until some considerable time after the contract was made that the plaintiffs became aware of the conditions and nature of the specification which existed between the defendants and the Corporation. The defendants broadly said that the cement did not satisfy the water engineer, who rejected it, and that that was conclusive whether it was up to the contract in other respects or not. That would be for his Lordship to decide. Again, the defendants said it was not in accordance with the contract in fact. That would be a question for the jury. The complaint was that the cement was too quick-setting, so that the concrete got hard before it could be taken to the place where it had to be used. Counsel admitted that it was to a certain extent a quick-setting cement, but the defendants had stipulated, according to the specification as between themselves and the Corporation, for a very finely-ground cement, which was necessarily a more quickly-setting cement than one that was not so finely ground. At first what was known as scale cement was supplied, but it had not the tensile strength required. On the seven-days' test it was not up to the requirements, but on the twenty-eight-days' test it was considerably above the contract strength. D. and H. cement was then substituted, and it was with respect to this the dispute arose, a large quantity having been allowed to accumulate at the defendants' works before they told the plaintiffs it would not suit them.—Mr. A. J. Pilkington, a partner in the plaintiff firm of Ingram & Clarke, stated that they were approached by several firms (including the defendants) with regard to the supply of cement for the Prescot Reservoir and the tests which would be applied to the cement. Witness communicated with the chief English manufacturers, and was told they could not guarantee cement to stand the suggested test. On December 21st, 1900, he gave a quotation to the defendants to supply cement and deliver at Prescot for 39s. 6d. He then communicated with the largest firm of cement manufacturers in Belgium, and made a contract for a supply, the Belgium cement being more likely to stand the high tensile strain required than the English. The first complaint had reference to two lots of scale cement delivered in August, 1901—one lot of 1,000 bags and another of 448 bags. In consequence of this, plaintiffs began to supply D. and H. cement on October 17th, 1901, and they continued to supply that down to June last.—Mr A. H. Holme, a member of the defendant firm, stated that he had had considerable experience in concrete work, and he considered that the mixing arrangements at Prescot were of the very best possible kind. He had never seen better sheds for the storage of the cement. The cement complained of was too quick-setting for reservoir work. His firm counterclaimed in respect of 6,000 cub. yds. of work, which would have been done in May and June, but which had to be done at a time when the expense was greater, as well as for plant lying idle through the rejection of plaintiffs' cement.—Mr. Horridge, K.C., for the defendants, submitted that the cement had never satisfied the Corporation officials, and that everything pointed to its being unfit at the time of delivery for the class of work contracted for.—His Lordship put the following questions to the jury: (1) Was the cement which was rejected supplied to the satisfaction of the Liverpool Corporation water engineer? (2) Was it rejected by the water engineer? (3) Was it best Portland cement, and reasonably fit for making concrete for a reservoir? (4) On the assumption that the defendants were justified in not accepting the cement, what compensation ought to be allowed to them for the expense and loss they had suffered?—After an hour and twenty minutes' absence, the jury returned into court and answered the questions as follows:—(1) No. (2) Yes. (3) Unable to agree. (4) £420.—After a long discussion between his Lordship and counsel as to the form the judgment should take, the judge directed judgment for plaintiffs for £112 10s. (the value of 60 tons of cement retained by the defendants for experimental purposes) and costs; as to the counter-claim, judgment for defendants for £420 and costs, and also for defendants as to the residue of the claim, except that as to the issues on the question whether the cement was up to the specification standard there should be no order as to costs.

Another Case of Collapsed Sewer Trenches: Heavy Damages.—The case of *Jacob* v. *The Corporation of Southend-on-Sea* was recently heard in the King's Bench Division of the High Court of Justice. The plaintiff, a carman and contractor of Southend, sought to recover damages from the defendants for personal injuries sustained by him owing to their alleged negligence. It appeared that at the beginning of 1901 the defendant Corporation were constructing a new sewer under Queen's Road, Southend. On December 31st, 1901, the plaintiff was driving a horse and trap along this road, and when at a point where the defendants had sunk a shaft the earth suddenly subsided and the horse fell into the shaft, the plaintiff being thrown out of his trap and severely injured. The sewer was laid down partly by means of trenches and partly by tunnelling, and the plaintiff's case was that large quantities of earth were removed from the trenches and tunnels, and on completing the work the earth was not properly and effectively replaced and rammed down. The result was that the soil subsided and caused the accident in question.—The defendants' case was that the work was not negligently executed, and that the earth was properly replaced and rammed down. They contended that the accident did not occur at a spot where there had been tunnelling, and that it was caused by an escape of water into the brick earth from a broken gulley-pipe.—The jury found for the plaintiff, with £3,500 damages. Judgment accordingly.

Means of Escape from Buildings: Important Case.—The case of *Toller* v. *Spiers and Pond, Ltd.* was heard last week in the Chancery Division of the High Court of Justice. It raised important questions under the Factory and Workshop Act, 1901, as to providing means of escape from fire at the City Mills building in Upper Thames Street. The building consists of a basement, a ground floor and seven upper floors. From the basement up to and including the fourth

floor (but excepting the second floor) it forms one factory within the Factory Acts, and this (factory A) is occupied by the defendants. The fifth, sixth and seventh floors form another factory (B), occupied by another firm. The London County Council gave certain notices for providing better means of escape in case of fire for the persons employed in these two factories. The question to be determined was whether the plaintiff—who owns the entire building—was entitled to compel Spiers & Pond to allow him to enter upon their demised premises for the purpose of executing the works described in the Council's notice. The material facts as to that notice were as follows:—The only staircases in the building are at the extreme northern end. If a fire were to break out in the centre of the building, the southern end might be cut off from the southern end. The Council were advised that it was necessary to have an alternative means of escape by a staircase at the northern end. The second floor not being a factory within the Acts, there was no power to interfere with the occupier of that floor. The staircase could not, therefore, be carried down from top to bottom of the building. In this state of facts the material part of the works required by the notice consisted in the construction at the southern end of a staircase starting at the level of the third floor of the building and extending up to the seventh floor. In the course of his judgment, Mr. Justice Buckley said: "The works reasonably required for factory A, if that factory alone had to be considered, have not been taken into consideration by the Council, and they have not given any notice to do works other than works for the benefit of factories A and B considered jointly, and the works specified are works which would give to each a means of escape through the premises of the other. Under section 14 (2) of the Act of 1901 it was the duty of the Council, I think, to serve on the owner of factory A a notice in writing specifying the measures necessary for providing means of escape reasonably required for persons in factory A. The owner, as against the occupier of factory A, would have been entitled to enter and do those works. But, as it seems to me, the proceedings which have been taken in respect of the two factories jointly have been wrongly taken and are ineffectual, and the works required are inadmissible. To support this action it is necessary to find in the Act a provision that two factories which have a common owner shall for the purposes of section 14 be deemed to be one factory. There is no such provision in the Act. I think that the plaintiff is wrong in contending that he has against the defendants a legal right to enter and do these works. I dismiss the action, with costs."

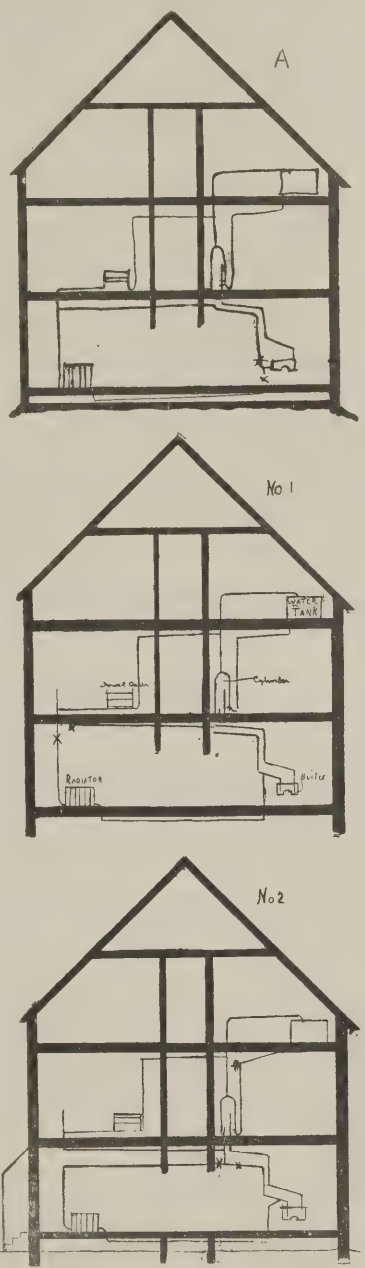
Inferior Bricks: A Judge's Remarks.—On Thursday last Judge Ingham and a jury were occupied at the Bromsgrove County Court, Birmingham, hearing an action brought by the Whetty Brick and Tile Co. against John Layton, builder and contractor, of Bromsgrove, to recover £20 odd for bricks supplied. There was a counter-claim for £28 for breach of contract and damages sustained.—The case for the plaintiff was that defendant ordered "seconds," at 20s. per thousand.—The defence was that the goods ordered were good sound hard-burnt bricks, and that those supplied were altogether unfit for the inside work for which they were intended.—His Honour said the class of brick termed "seconds" was the sort of rubbish they saw constantly where building was going on, bricks that made one wonder how any honest builder could use them, or how any honest architect could pass them.—The jury dismissed the claim, and gave judgment for the defendant on the counter-claim for £11 2s.

Enquiries Answered.

The services of a large staff of experts are at the disposal of readers who require information on architectural, constructional or legal matters. Questions should in all cases be addressed to the Editor. The querist's name and address must always be given, not necessarily for publication.

Hot-water Supply Apparatus.

LIVERPOOL writes: "It is proposed to heat a towel-airer in a bathroom and a small radiator in the hall by the kitchen-range



boiler. The kitchen is on the same floor-level as the hall, and the cylinder is on the bathroom floor-level. As the radiator would only be required in the winter months, it would be necessary to have a separate circuit controlled by valves as shown at × on the accompanying sketch. Would either of the schemes sketched be successful? As there is a dip below cylinder in the secondary circulation, where should this return pipe terminate? Should the return from radiator enter the primary return or enter the boiler direct?"

It is not stated whether this is a new job, or whether the towel-airer and radiator are to be attached to an existing system. In the former case the diameters and lengths of the proposed pipes should have been given. In the latter case the diameters and lengths of both present and proposed pipes are required. In either case it is necessary to know the sizes of the boiler and the fire-box. Adding a towel-airer in a bathroom would not make much difference to the system, and is very often done. The secondary circulation pipe which should return from the hot-water tap should be as large as the supply-pipe to the tap, instead of being a size smaller, as is usual. But few systems of domestic supply hot-water apparatus are put in with sufficient margin to allow of the addition of the two proposed fixtures without impairing their efficiency. The sketches submitted are very clear as sections, but should have been supplemented with a plan of each floor. The better of the two methods shown is that marked No. 1. This, however, would be uncertain in its action. Treating the system as a hot-water heating installation would make it positive in its action, as all the water would then circulate through all the system. Instead of the ordinary flow and return pipes between the boiler and the cylinder, only the flow-pipe would be fixed, the water returning from the cylinder to the boiler through the towel-airer or through that and the radiator, according to the valve which was open. By this method, however, the hot-water supply would suffer for the benefit of the heating. This method is shown on sketch A. An alternative plan would be to have the ordinary flow and return pipes between the boiler and cylinder, and to take the supply to the towel-airer and radiator by a pipe from the top of the cylinder, separate from the bath supply, and connect the return pipe from these fixtures to the bottom of the cylinder. In any case the success of the system will depend on the power of the boiler and the size of the pipe. Should either of the methods shown on sketches 1 and 2 be tried, the return pipe of the secondary circulation may be connected to the primary return. The return pipe from the radiator will be better connected to the boiler direct—to the side of the boiler near the bottom. G. A. A.

The R.I.B.A. "Classic Ornament" Sheet.

CARLTON.—A STUDENT writes: "In connection with the testimonies of study for the intermediate R.I.B.A. examination, would the following subjects be suitable for the 'Classic ornament' sheet. I propose to draw to a little larger scale from Spiers' 'Orders.' From plate 24 I propose to take examples Nos. 5, 6, 10, 11, and from plate 25 either No. 2 or 4 or 7 (which is the most suitable?) I propose to draw them out simply in outline. To what scale should they be drawn?"

Though it is customary for students to prepare their sheet of Classic ornament in the way proposed, it is very unsatisfactory, especially as plate 24 in Spiers' 'Orders' is not well drawn. No. 7 is the best of the alternatives. It is the well-known Erechtheum frieze, of which a cast is published by Messrs. Brucciani & Co., opposite Drury Lane Theatre, W.C. The best thing for a provincial student to do would be to buy a cast, and work from it to a large enough scale to cover the whole of his sheet with several repeats of the ornament, drawn very carefully in pencil outline, either of perfectly equal thickness of line throughout, or with the thickness carefully graded to suggest the shadows. London students should work direct from the marble in the British Museum.

G. A. T. M.

Calculating Heating Surface for Radiators.

HARROW.—J. M. L. writes: "(1) Where can I obtain trustworthy information as to calculating the amount of direct-indirect hot water and steam radiator surface neces-

sary with a given inside and outside temperature, and for a given quantity and velocity of air required for ventilation? (2) Is there any English or American institute of heating and ventilating engineers, and is it necessary to pass any examination for admittance as member?"

(1) In the works by Mr. F. Dye (London) and Mr. W. J. Baldwin (New York) on hot water and steam heating are to be found the best methods of calculating the amounts of radiator surface necessary for steam and hot-water heating under various conditions. The "Metal-Worker" Essays on House Heating (David Williams, New York) gave a most complete series of tables from different authorities giving the same information in a condensed form; also giving information as to velocities of air in ventilation. For information as to quantities and velocities of air see Galton's "Healthy Dwellings," Parke's "Hygiene," Billing's "Ventilation and Heating." (2) Mr. E. Taylor, of 99, Fonthill Road, Finsbury Park, N., hon. secretary of the Institution of Heating and Ventilating Engineers, will be pleased to give aspirants for membership full information as to qualifications and conditions.

G. A. A.

Finishing Inside of Conical Roof.

CARLTON.—A STUDENT writes: "A conical roof is to be finished white inside. The glazing to the roof is done on Heywood's system, and the steel bars covered with lead underneath. It is difficult to make lead adhere properly to lead. How should these leaded bars be treated to make them correspond to the remaining white painted work?"

If difficulty be experienced in using lead paint, try either Gay's "Impenetrable Paint" or Chancellor's "Velure." The former is made by Messrs. R. Gay & Co., Langthorne Works, Stratford Market, E., and the latter by Messrs. C. Chancellor & Co., 13, Clerkenwell Road, S.E. G. A. T. M.

Measuring Wall supported on Girder.

X. Y. Z. writes: "In measuring the height of a wall supported on a girder, for the purpose of determining its thickness under the building by-laws, cannot that portion in contact with the girder be legally taken as the base of such wall? The sanitary authority contend that the base should be reckoned from the footings of jambs or piers on which girder rests."

According to the London Building Act, 1894, section 5, sub-section 10, "the expression 'base' applied to a wall means the underside of the courses . . . . in the case of a wall carried by a bressummer, above such bressummer." W. E. D.

Books on Quantities and Architectural Formulae.

WEST HARTLEPOOL.—SUBSCRIBER writes: "Which is the best book on quantity surveying, also the best handbook of formula, tables, memoranda, &c., for architects and surveyors?"

"Quantity Surveying," by J. Leaning (E. & F. N. Spon, Ltd., price 15s.), is the most comprehensive work on the subject, but a very good book for ordinary work is "Quantities and Quantity Taking," by W. E. Davis (price 3s. 6d. nett). The best pocket-book of tables, formulæ &c., for architects and surveyors is Hurst's (E. & F. N. Spon, Ltd., price 5s.).

Duties of Surveyor to Urban District Council.

ILFORD.—A VERY OLD READER writes: "What are the duties of a surveyor to an urban district council, and what book explains the routine of such a surveyor's work? Is it necessary to be an A.M.I.C.E. or a member of the Institute of Sanitary Engineers?"

We advise you to get Mr. J. Freebairn Stone's book on "How to become a Municipal Engineer" (published by the St. Bride's Press, Ltd., at 24, Bride Lane, E.C., price 1s. nett), which will give you all the information you seek.

A Correction.—In reply to A. S. B. on p. 299 of our issue for December 17th it should have been stated that the wall is required to be 13in. below the topmost storey—in the case mentioned the whole height of the wall.

EDINBURGH ARCHITECTURAL ASSOCIATION.

Mr. Aldwinckle on Emergency Hospitals.

MR. THOMAS W. ALDWINCKLE, F.R.I.B.A., London, lectured last week to the members of the Edinburgh Architectural Association on the erection of isolation hospitals in times of emergency. The lecture was for the most part a description, illustrated by plans, of the hospitals erected in connection with recent epidemics in London. In the course of some general introductory remarks he described the general methods of building a hospital under pressure of an epidemic, such as the Metropolitan Asylums Board had to contend with this year.

In order to build a properly-equipped infectious hospital in a few weeks the ordinary procedure, he said, would be quite out of the question. There was no time for elaborate plans, for bills of quantities or for inviting tenders by advertisement. The architect selected should be thoroughly conversant by previous experience with this class of work, and it was equally important to have an expert and trustworthy builder. As there was no time to enter into a contract for a fixed sum, the amount to be paid to the builder must be based upon a schedule or left for valuation.

There was one important question which arose in connection with these emergency hospitals about which there was considerable difference of opinion—whether the buildings should be made of as permanent a character as possible, consistently with speed of erection, or be "knocked up," so as to last a short time, and be afterwards pulled down. Much depended on the circumstances of the case. The cheaper method of building was considered advisable by some on the grounds, firstly, of economy, and, secondly, on the ground that the sooner an infectious building was destroyed the better. As to the latter, there were now no difficulties in the way of thoroughly disinfecting a building; as to the former, he doubted whether it was a true economy. Personally he was strongly of opinion that the truest economy was to erect those emergency hospitals in as permanent a way as would be consistent with a high rate of speed. It might be taken for granted that if the isolation hospital was wanted at the present time it would be wanted in the future, and if such be the case the permanent construction was the truest economy.

It should also be borne in mind that the whole of the sanitary arrangements must be good, and consequently expensive, and that all these would be practically wasted in a merely temporary building.

Referring to the details of construction, he advocated a good platform of cement for the whole building; the walls and partitions of fir quartering, with the outer walls covered with diagonal boarding, felt and corrugated iron. The roof, which should be of the ordinary timber construction, should also be covered with diagonal boarding, felt and corrugated iron. The internal finishings were also described in detail. He did not, he said, admit the principle of a second quality in sanitary work. The patients were just as ill in a temporary as in a permanent hospital, and required the same advantages of perfect sanitation. The same remark applied to warming and ventilation. It was preferable to warm by means of open fireplaces, supplemented by low-pressure hot water or steam apparatus. It took some time to build brick fireplaces, and sometimes this was not practicable, but a great effort should be made to provide these, as an open fireplace was after all about the best exhaust ventilator that could be found.

It was of vital importance that as emergency hospitals were somewhat more inflammable than an ordinary permanent hospital, very complete and adequate fire-extinguishing appliances should be provided, as also a complete system of fire-alarms.

In concluding, Mr. Aldwinckle gave particulars of an emergency hospital of 612 beds he had erected this year for the Metropolitan Asylums Board, together with its administrative staff quarters and administrative buildings at Gore Farm, near Dartford. His firm was instructed on January 9th. It was arranged (in case of fresh developments of small-pox) that the new hospital should be opened in stages as completed so that no time should be lost. The boiler-house, laundry and kitchen were ready on February 22nd, the ten temporary ward-pavilions a week later, the administrative block on April 7th, the six staff homes and eleven ward pavilions on April 21st, and the remainder of the hospital on May 3rd. The number of men employed was 2,600; £6,000 was spent in providing sleeping huts for some 1,100 men, and about £1,200 in having them vaccinated, and in other incidental expenses, the new hospital being close to one that was full of small-pox patients.

The erection of isolation hospitals in times of emergency was very costly. That such emergencies should occur demonstrated the extreme difficulty of accurately estimating the margin to be allowed in the provision for infectious diseases, and more especially in the case of small-pox, the course of which was most erratic. This applied alike to large and small communities, and as these emergencies were not only possible, but probable, it would always be useful to understand the best methods by which to grapple with them, and thus prevent an outbreak from developing into an epidemic, a result which the Metropolitan Asylums Board had fortunately been able to achieve in connection with the visitation of small-pox in London during the present year.

Mr. A. Hunter Crawford presided over the meeting. In the course of the evening the services of Thomas Fairbairn, who had been hon. secretary for twenty years, were acknowledged by a presentation, which was made to him by Mr. Thomas Ross on behalf of the Association.

COMPETITION REFORM SOCIETY.

Protest against Two Competitions.

A CIRCULAR has been sent out by this Society to all its members in regard to the two competitions respectively for the proposed poorhouse at Motherwell and the proposed church and churchroom at Burtonwood, Lancs. The Committee disapproves of the existing conditions of these competitions, but is endeavouring to obtain a revision of them. Members are therefore requested to abstain from competing unless they receive a further communication to the effect that the conditions have been satisfactorily revised.

ARCHITECTURAL ASSOCIATION.

Study and Delineation of Old Buildings.

By W. H. BIDLAKE.

A MEETING of the Architectural Association was held last Friday, Mr. Henry T. Hare, F.R.I.B.A., presiding. The minutes having been confirmed, Messrs. K. W. Booth, R. T. E. Neeves, W. H. L. Keay, Ernest Newton, H. H. Wigglesworth and Sir John Taylor were elected members.

Mr. W. H. Bidlake, M.A., then read his paper on "The Study and Delineation of Old Buildings," as follows:—

The intimate association in the title of this paper of the study of old buildings and their delineation might suggest that there was an inseparable connexion between them. Such, however, is far from the truth. The study of old buildings does not necessarily involve their delineation, or the delineation of them inevitably imply their study. This statement seems self-evident- perhaps too self-evident to attract attention. A student is, as a consequence, advised to sketch and to measure old work without any qualifying advice as to what to study or how to study.

Growth is not helped by unsuitable food badly digested. Measuring up bad examples and making drawings of them in a mechanical spirit will neither develop a student's taste or his knowledge. Perhaps it did not occur to him that either his taste or his knowledge required developing. "Then," you ask him, "why make any measured drawings at all?" "Well, I thought it might be a good thing to get them published in one of the building journals," or, "One must have a set of show drawings to take round the offices to get a berth."

More likely still they were made to compete for one of the Institute or Association prizes, or for the A.R.I.B.A. examination, or to play their part in

A Deeply Laid Scheme,

worthy of an American company-promoter. For if a student has made his finished drawings at a school of art, he will first send them in for a local prize. Having won this, they will appear at the national competition, perhaps with a gold or silver medal award. They will then be passed on for the Institute Silver Medal, and the next year they will once more reappear, supported by sketches for the Pugin. They will by this time have been published in the building papers and the "Architectural Association Sketch Book," and will also have won for their author a seat in the office of some prominent London architect. And finally they will serve as testimonies of study for the Institute examination, if, indeed, they do not eventually once more re-assert themselves in the garb of a monograph. And all this with the same set of drawings! Well, if measured drawing has not advanced the student's taste it has at least helped to stimulate his commercial instinct. But where does the study of old work come in?

It would be interesting to learn how our wide-awake student came to select his subject. His principle is,

The Greatest Effect for the Least Labour.

Sound commercial doctrine. It must look costly, but be cheap. This man might verily have made his fortune if he had not elected to be an architect. He selected the portion of the building which he measured up because it was easy to get at, and would make a telling set of drawings.

Another student would select his subject because it had not been done before, or because it was one of the subjects recommended by the Institute.

This desire to make the drawings rather than study the building naturally influences the method of work. Arrived at length face to face with the subject of his choice the student sets about drawing and measuring, and having taken all the leading dimensions and made more or less freehand drawings of the mouldings, and taken any further notes necessary to complete certain elevations or sections he had decided to illustrate, he buys, or himself takes, photographs of ornamental detail sufficient to enable him to elaborate the drawings at home. Perhaps a month after his return, and a hundred miles away from his building, he will commence plotting out his measurements. Some will not work out, and there is no chance of correcting them. He assumed the walls were at right angles, and that the whole of the work was set out with the rigid accuracy of his tee-square and set-square. An examination of the photograph is then substituted for the study of the building, and a draughtsman's skill covers a multitude of inaccuracies. The drawings win the prize; that is sufficient.

Such measured work is not study; indeed, I would go further and say such measured work prevents study by substituting the counterfeit for the genuine. I lay stress on this point, or you will say, "Thou didst come here to bless measured drawings, and lo! thou hast cursed them altogether."

What, then, shall we say of the student who has substituted study by

Photography

for measured work and sketching? It would be absurd to deny the value of photography to an architect, or the delights of the pursuit; but to take photographs of a building is not the way to study it. Here is a fine parish church. Suddenly the amateur architectural photographic enthusiast appears. He manœuvres for a good view; sets down his camera; focuses; draws the dark slide; turns his back to the building; removes the cap, and studies his watch; claps the cap on again; packs up, and rushes for the station. The enthusiast objects that this description is a caricature. Very well. Photograph at leisure and with great care; still, how can you judge the proportion of a façade when you see it standing on its head. "Do you know such or such a church?" asks one. "Oh yes, rather. I took at least a dozen snapshots of it last summer. I haven't developed them yet, but I hope they will come out all right."

The amateur photographer objects with increased resentment. "It is absurd to suppose that you can spend some time about a building without forming a very good idea of it." Yes, but he forms his idea of it when he is walking round and thinking about it, just the precise part of his stay when he is not photographing it.

Clearly, if he is taking a dark interior which requires an hour and a half's exposure, he must be doing something whilst—and I think that one of the ways in which photography is an aid to the student is that it compels him to wander round and about a building, and observe it more in detail than he otherwise would do—whilst the cap is off his lense: that is unless he avails himself of the opportunity to go off to the inn and get lunch.

Happily, those students whose ideal it is to obtain as many prizes as possible with one set of drawings or the minimum of study, as well as those who regard photography as an efficient substitute for pen and pencil, are in the minority, but it is as well to recognise wrong methods whilst we are in search of right ones.

Our aim, then, shall be to study the buildings themselves, and only to make drawings of them as a means to that end. If, as supplementary to this study, our drawings have been made with that artistic finish which is peculiar rather to the draughtsman than the student, so that they are awarded a medal or a studentship, so much the better. For no kind of study is assisted by slovenliness of expression, and therefore

The Careful Study of a Building

should be embodied in the most painstaking description, both with pen and pencil. Herein lies the true connexion between the study of old buildings and their delineation. By this study we seek to increase our knowledge and sharpen our æsthetic taste. This is our aim, and our subject will be selected accordingly. It will certainly be a subject we feel in sympathy with, one which we feel drawn to by excellencies of one kind or another which excite our enthusiasm and our desire to emulate them. At the same time let us cultivate catholicity, remembering that want of sympathy is often due to ignorance, and that whilst sympathy may stimulate study, study in turn may awaken sympathy.

If, however, we feel that a building is bad in design, and that we shall learn nothing from it, we will not make measured drawings of it because no one else has, as yet, made them nor for any other reason equally foolish.

But how shall we study our building or such part of it as we may have selected? By measured drawing and sketching? What, are those the only means of study! They are certainly the most frequently recognised means with architectural students and, perhaps, there are some who think them all sufficient.

I believe there are occasions when a pipe will serve us better than a 2ft. rule. A pipe makes one contemplative, and to walk round an old building

In a Contemplative Mood

is to have put oneself in train for studying it; for catching the spirit and romance of it. Under its kindly influence the imagination will conjure up from the stores of one's historical and archæological learning—if it is there to conjure up—the conditions of society and of the craft guilds, the observance and the ritual of the church, and the quaint superstitious customs of the country folk at the time when the stones of the building were put together and which find expression in it in its arrangement and decoration. And falling thus into a sympathetic reverie, let the eye wander over the building, noting this or that point of interest whether of design or construction. Then leading your thoughts back to modern times and the conditions of to-day, comparing and criticising and drawing conclusions take out your note-book and write down your impressions whilst they are still warm, whilst the glow of feeling unlooses your powers of expression whether by descriptive note or pencil sketch. Very likely the building will live in your memory through all your future life; for we remember most what we feel most.

It is particularly important to make a general study of the whole before making a particular study of a part, so that the relationship and proportion of one to the other may be adequately perceived. One may sometimes see a student fasten on some detail which attracted him on his first approach, and devote his time so exclusively to it that he leaves without any idea of its setting or the part it played in the whole design. Do not, therefore, study details without making a key sketch sufficient to show their position and

Relative Value to their Surroundings.

Do not accept a design because it is old: it may be old and bad. Always keep the critical faculty on the alert. This habit is of the very essence of the study of the old buildings. You will not regard Salisbury as a model west front because it was built in the thirteenth century. Standing in front of it you will question yourself: Is it good? Could it be improved? What are its defects? Perhaps it will remind you of a comparison you have made between the west fronts of

Siena and Orvieto cathedrals, or your thougnts will turn from the confusion and irresolution of Salisbury to the commanding lines of Nôtre Dame. Then take out your note book and try your hand at it, take the west front as it is and with as little alteration as possible pull it into shape. If you have a companion with you on your excursion let him do the same, and then compare notes and discuss it together.

A Companion

of the right sort, that is one who is equally bent on study, is a great gain on a sketching tour. Of course he can hold the tape, but he can be of much greater service than that. He can come up and ask you what you think of such a building. This compels you to give an answer. If you reply merely "Oh! very good," you are depriving yourself of an opinion more than you are depriving him—your own opinion, which you have not taken the trouble to form. If you are wise you will treat his question seriously. You will look at the building well, and in a critical frame of mind. Not only will the process of so doing lead you to notice many points which you would otherwise have passed over but you will have subjected yourself to the healthy exercise of making up your mind. It will not only reveal the building to you, but you to yourself. Your companion will probably have formed some opinion of his own before asking yours, and he will differ from you in some points. This would lead to a more careful scrutiny of the building in search of evidence in favour either of your view or his, and in the end you will both have gained in knowledge and in the formation of a critical taste. I know hardly any advantage in the study of old work greater than the discussion of it with a fellow student who is thoughtful and well informed.

If you are alone, do not on that account fail to come to a conclusion as to whether you like or dislike any building worth attention, and why you like it. Keep a notebook for the purpose of writing down a critical description of such buildings. On first commencing such a practice you will be astonished to find how vague your impressions are. I am not here referring to

Those agressively Dogmatic Opinions

which characterise the very young student, who always regards the work of contemporary architects as beneath contempt. Such opinions are not the result of thought, nor are they founded on knowledge, they are simply a little preliminary crowing, necessary in personal development, and remind one of Dr. Jowett's remark to his students, "For we are none of us infallible, not even the youngest." Every student has a right to the belief in his own infallibility until life disillusions him; it is the man who has no opinion of himself and is unable to form one of anything else that is beyond hope.

As time goes on, the judgment, well practised by such method, is likely to become more sound and more self-reliant, for the mind will have laid up an ever-increasing store of knowledge for comparison and correlation. Thus the study of this building is amplified by a previous study of a similar one, and the points of difference are noted, and the reasons for them investigated. Perhaps it is that the building material is different, or that, being rather later in date certain decorative forms shows signs of change. In a third building of still later date these signs are amplified, and the student comparing this with that, begins to detect the various examples which at first seemed isolated and apart a law of common development, a law of life. He now begins to generalize, timidly at first, but, as new observations confirm or modify his previous conclusions, ever with greater boldness and wider range of view. He will then be in a position and have a right to theorize, and will form the habits of mind he has acquired, always bring his theories to the test of his facts. Now compare the position of a student who has adopted this method of study—although, content with thumbnail sketches and notes, he may never have made a measured drawing—with the one who made one set of drawings, and swept all the prizes away within reach. The world, judging by tangible and visible results, proclaims the latter

The Coming Man.

So he is at first, the other's day comes later but lasts longer.

How many prizes there are for drawings; how few for critical study! Is it not possible that at some future time, either at the Institute or the Association, more awards will be given for thinking, and especially for thinking and drawing combined? I think the essay prize is one of the most useful that the Institute offers, but the subject set is often one which the student can only illustrate by copying prints from books or photographs, and stimulates his reading rather than his critical faculties. What I think is wanted is a prize for an original and critical study of some particular class of buildings or parts of buildings, easily accessible in this country, to be illustrated by sketches and measured drawings made by the student from the buildings themselves.

Causes.

In the study which we are considering it will be very necessary to supplement work on the spot by also studying it in books, so as to furnish ourselves not only with the conclusions to which others have arrived on any particular subject, but to acquire that general historical knowledge which, with the help of our own imagination, will enable us to set the designing and construction of the buildings within the social and historical

Environment of the Time.

How can one study Stokesay Castle or Haddon Hall, and understand the arrangement of their plans, without knowing something of the social and domestic life of the times. Looking at the buildings will not teach us this, however cleverly we may guess at the purposes of this or that. We must go to Hallam and to Green.

Again, we must learn about the conditions of labourer and craftsman, of the prevalence and organization of guilds, of the position of the designer, the magister, of the force and direction of tradition, of the tools in use at the time, and of the methods of working materials and incorporating them in the building.

We must not forget also to study the traditions, the ritual, and the history of the Church so far as they affect ecclesiastical building; this will also involve some knowledge of the distinctive requirements of the various religious orders.

In the same way some knowledge of the methods of attack and defence of the period will help us to understand military architecture.

All this means systematic reading, which perhaps the everyday student does not feel disposed to undertake. Well is it for him that the Institute examination compels him to acquire some knowledge on these points in spite of himself. Vitruvius considered in his day that an architect should be a man of many accomplishments, and nowadays

An Architect's Culture

will inevitably find expression in his buildings.

In addition to this more general study we must further investigate the circumstances of the particular building we are examining.

To do this we must find out what we can of its history, and the part it has played and was intended to play in the past.

We must especially inquire into the properties of the local materials of which it is built, and of any traditions of working them which still survive.

Old buildings are apt to seem impersonal to us. The colours with which nature has decorated them, as though eager to deceive us that they are her work and not man's, gives them the air of being the product of the land around them, like rock and tree, and the human life that has thronged them since that far-away time when they were built confuses the scant glimpse of their founders like a veil drawn before a face. But we must not forget that they were designed by men exactly similar to ourselves, so much so, indeed, that if one of them were to return to earth he would probably drop into our modern ways in a week; and we may therefore look at their work as we should that of a living architect and try to read what was in the mind of the designer of this building or that, and ask ourselves, "What was he driving at?" No doubt he was hedged in by

Limitations

similar to those of to-day. Even in the days of the Great Pyramid men could not build without cost, and they have not succeeded in doing so since. The whims of the client must at all times have stolen an architect's sleep. I think Magister Mutius probably found Pliny a very exacting client. The limitations of site must have influenced all but the Romans, who thought nothing of excavating the hill for the level Forum of Trajan, or levelling up the ground on a gigantic concrete platform for the Thermæ of Caracalla. The adaptation of a building to its site should engage the most earnest study. An unusal site, whether of shape or level, is the doom of the incompetent architect, the triumph of the skilful one. From the Athenian Propylæa and Erechtheion to the rock of Mont St. Michel architectural history presents one long procession of buildings whose architects have presented them to the world as monuments of their genius.

Next Notice the Limitation of Material

and its influence on constructive and decorative forms. Ascertain the kind of stone procurable, whether in blocks or slabs and their available size, and note how this has influenced the character of the building and given an individual stamp to the buildings of a particular locality. The monolithic window-jambs of a Yorkshire cottage might be compared with the jointed jambs of a Cotswold one, and the influence of the use of flint in the Eastern counties might similarly be noted. Examples of

The Influence of Material on Design

are to be found everywhere, however, to the seeing eye, and it is not within the scope of this paper to attempt to enumerate them. The point to be emphasised is the extreme importance of the subject to the student of old buildings. The particular tools in use have also played their part in the shaping and decorating of buildings, as in the dressing of stone or the adzing of timber. The use respectively of the chisel or drill in Roman acanthus sculpture, or of the adze or chisel in Norman carving, gives a very distinctive appearance to the work.

Doubtless there are many other limitations which have helped to determine the character of buildings, and which the student will detect in the particular building under study.

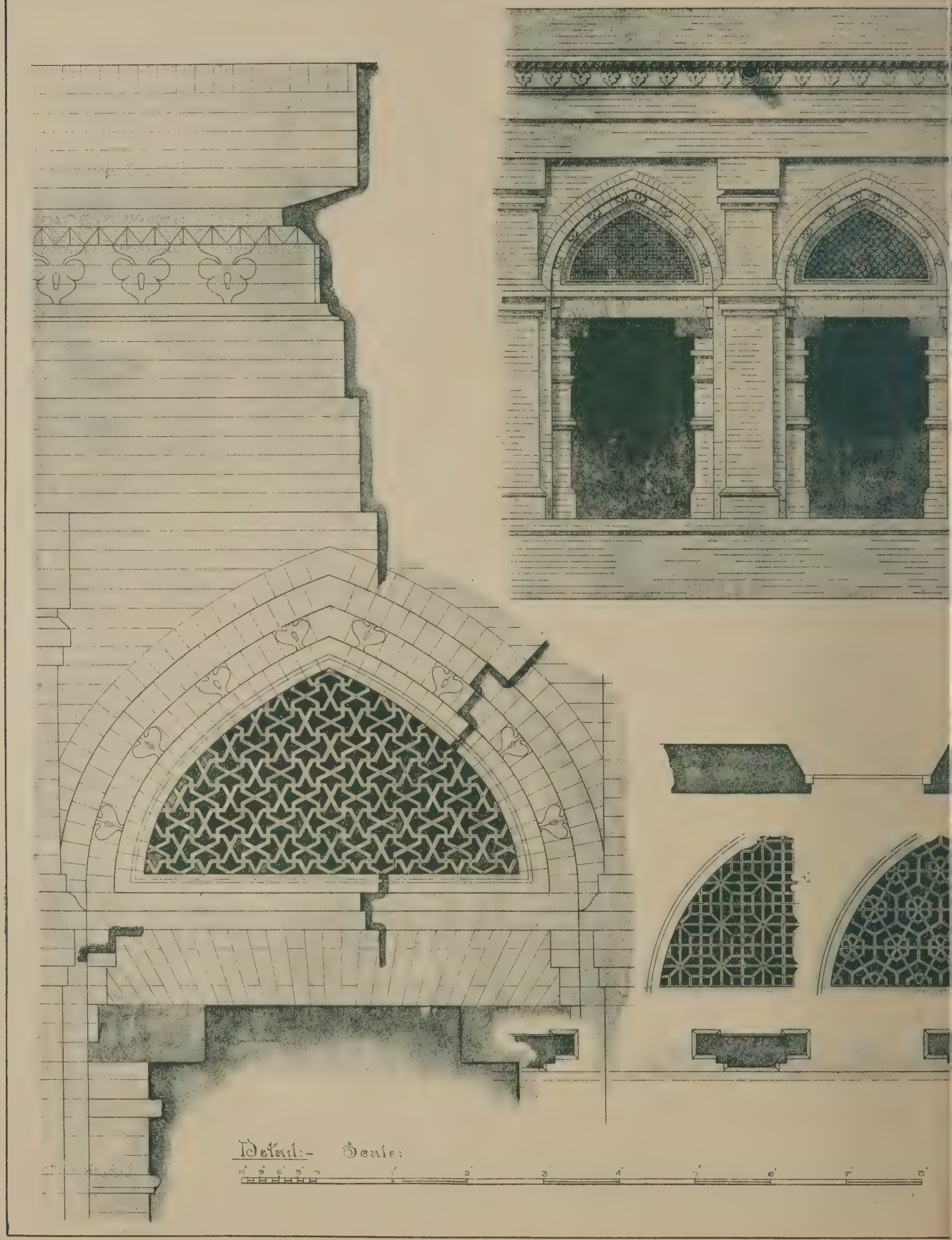
In narrowing our attention to any particular building we shall

First of all Examine the Plan.

This is of supreme importance. Within it somewhere, somehow, lies the soul of the building; all else is but the embodiment of it. See how the various rooms are grouped together to suit the needs of the time, and note particularly the entrance, the hall, and the staircase; also the position of the plan with regard to aspect and points of approach;

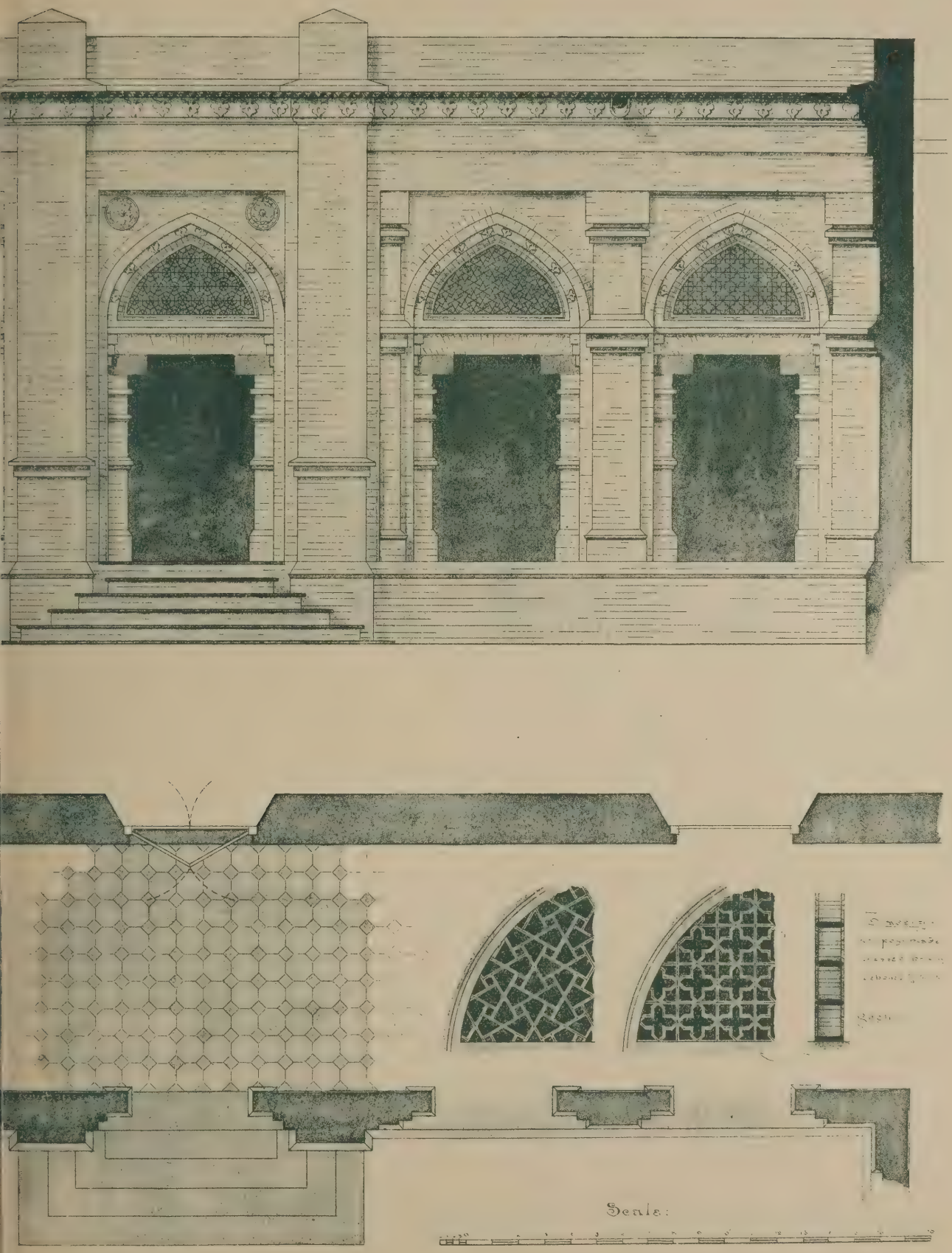
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Supplement to
THE BUILDERS' JOURNAL AND ARCHITECTURAL RECORD,
Wednesday, December 24th, 1902.



MAYO SCHOOL OF ART, LAHORE

MEASURED AND



"INK-PHOTO." R. J. EVERETT & SONS, 58 LUDGATE HILL, E.C.

DIA: WEST SIDE OF QUADRANGLE (VERANDAH).

VN BY W. CAMPBELL OMAN.

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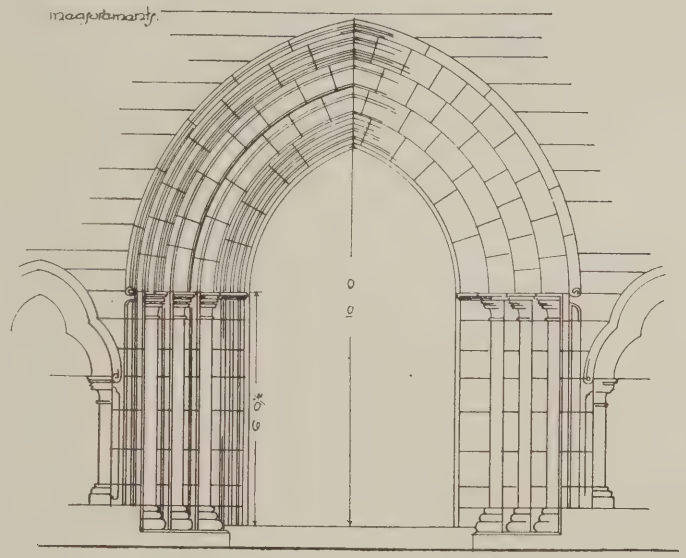
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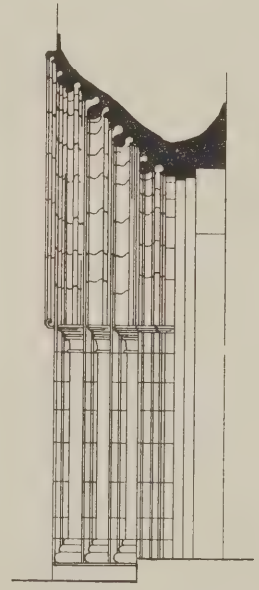
WEST DOORWAY
S. EDMUND'S CHAPEL.
GATESHEAD.



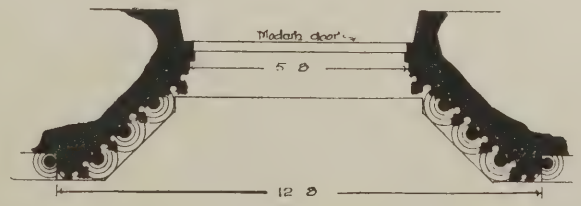
Note. Joints shewn are from actual measurements.



Elevation.



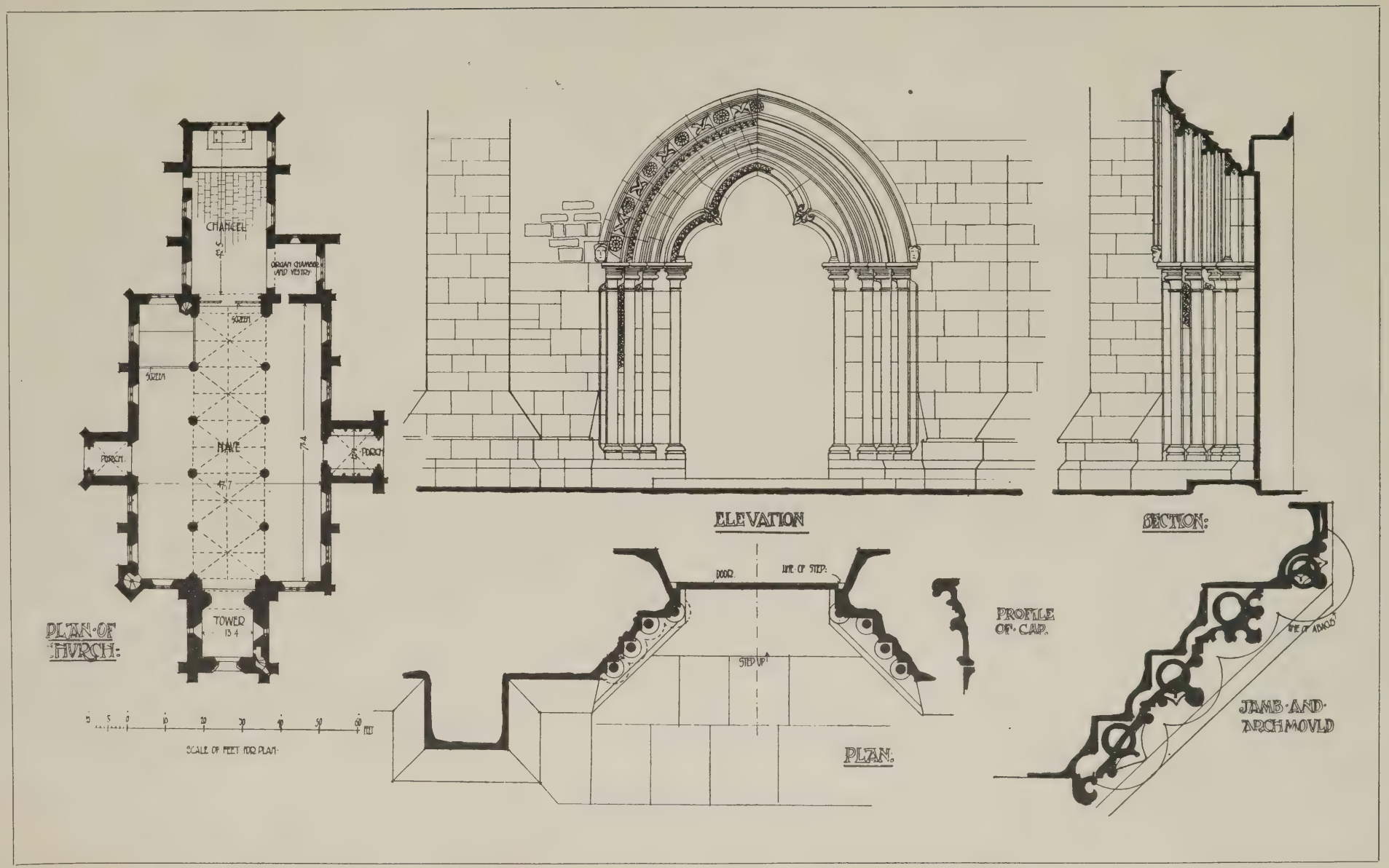
Section.



Plan.

MEASURED AND DRAWN BY R. WYLIE.

Supplement to
THE BUILDERS' JOURNAL AND ARCHITECTURAL RECORD,
Wednesday, December 24th, 1902.



ST. MARY'S CHURCH, WARMINGTON: DETAIL OF WEST DOORWAY IN TOWER. MEASURED AND DRAWN BY HEATON COMYN, A.R.I.B.A.

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how the levels work out with regard to the site, and how the house sets with the garden. In ecclesiastical and other work the plan in the same way is the key to the building, and merits our first attention.

Having examined the building from within, next see how the plan with which you are now familiar finds

External Expression.

And first of all note the way in which it is roofed and the manner in which the various parts are grouped together. These are matters of great importance in architectural design, and must always have been so, and must have been considered by the architect in the arrangement of his plan. How frequently nowadays are they not left to take their chance.

It is the more important that the student should give his attention to these matters of massing and grouping, because by this means he is led to study buildings in the solid, and an antidote is in a measure found against the tendency to façade and elevation designing inseparable to the working out of a building on paper.

How much may be learnt from the design of chimneys, and the manner in which they contribute to the conception as a whole; how well was their value recognised by their builders. On the other hand, does an architect nowadays consider the disposition of his fireplaces in the plan so that the chimneys rising from the roof may group well together from the more important points of view.

Sky-line.

Connected with this subject of roofing and chimneys, as well as with that of gables and turrets and cathedral towers, is that of sky-line. Study it at the time of sunset—I will not be so impracticable as to say sunrise—when the purple outline is silhouetted against the sky. And, in like manner, learn the value of simple masses in twilight and moonlight when the disturbing details are suppressed.

From the study of these more general features you come to that of

Details,

or it may be that in any particular building it is some detail alone that is worth attention. Every building must, of course, be studied for the features of excellence it possesses, and that critical sense to which I have already referred will prevent us from thinking we recognise them where they do not exist, as a bee draws honey only from those flowers which produce nectar.

There are one or two ways by which I think we may make our visits to old buildings more valuable to us, which I may refer to in passing. And one is to set ourselves to

Plan and Design some Building of the same kind

that we propose to study. To fully realise the difficulties of an achievement, so as to observe how they have been solved by others, one must make a similar attempt; this will reveal to us what those points are about which we need the help of other minds.

And another excellent method of study is to take up some particular subject, such as, for instance, the design of chancel screens, and make a comparative study of it, just as if one were preparing an essay or a monograph on the subject.

I have hitherto considered the study of old buildings from observation and examination with the aid of the note book only; we must now ask how this may be supplemented by their

Delineation.

I say supplemented, because I think we should not regard old buildings as dead and lifeless forms to be dissected piecemeal. They are organic creations still instinct with antique life, and we must learn to know them before we portray them; we must examine the building as a whole before we begin to devote our especial attention to a part.

Now in considering this delineation of old work, there are two factors to take note of, our subject and ourself, and we must be dutiful and just to both. We must not run away from the original for the sake of a flourish of the pencil on the one hand, nor need we, on the other hand, suppress any distinctive style of draughtsmanship which we have made our own, and which is rightly the expression of our own feeling and our own individuality.

I think an ideal measured drawing or sketch is one which truthfully represents the building, but which is at the same time executed with all the verve and character of the draughtsman. There are some buildings which would be barely interesting, as represented by measured drawings, did not

The Force of Draughtsmanship

fairly rivet our attention.

Indeed, some of the finest buildings, which are fine because of their uninterrupted surfaces of wall and their bold projecting masses, are, if tamely represented by measured drawings, reduced to a few thin ink lines straggling over an expanse of the whitest Whatman paper.

On the other hand, measured drawings must be line drawings, and it would be absurd to shade them up to give a suggestion of projecting surfaces in a picturesque fashion, although the reliefs might be systematically indicated by colour washes after the French manner by cast shadows. I think myself, however, it is best to leave the shadows alone. Measured drawings are for architects only—the public do not understand them, and are not interested in them—and architects would at once perceive the relative value of the surface of elevation from the accompanying plans.

It is here that the value of sketching comes in, for it enables us to judge the building as a solid, whilst the draughtsman is justified in making his drawing or sketch expressive of himself as well as representing his building. Affectation and trickiness are to be severely deprecated, and there is enough of both in the draughtsmanship of the day.

We do not need to picture an innocent old manor house as a snow building relieved in aggressive outline against

The Blackness of an Inferno.

The method we shall adopt in representing any particular work will depend upon the character of the work and what it is of which we wish to keep a record.

If it is a façade, we may make a measured drawing to a small scale; if a decorated sedilia, then one to a large scale; and in either case the drawings will be accompanied by a sketch plan showing the position of the part which is illustrated, and the mouldings and details will be drawn out full size. All this will be done fully and thoroughly on the spot. If, on the other hand, it is the grouping of chimney and gable, the play of surface, the picturesqueness of setting, and a hundred other reasons, we shall find a sketch the most serviceable.

If, again, we wish to remember the charm of colours due to the use of various materials or some definite scheme of painted decoration, a water-colour sketch or a tinted pencil drawing will serve us best. Or, if the sky-line of some building seen against the evening sky attracts us, some brown paper and a piece of white chalk will be useful.

Our object is to catch and fix some particular point or feature which interested us,

Some Beauty which Excited our Enthusiasm,

and we may seize the means readiest at hand or best for our purpose, as the case may be, our only care being that we possess ourselves of our aim whatever the medium. If we have any artistic power, we shall find it will also lend itself to our self-expression.

Whilst we may well need our colour-boxes for the purposes I have described, we shall not require to make water-colour studies of buildings whose charm lies in the tints of old age, the setting of foliage, or the accidental colouring of sunset. Of course, as artists, we may indulge in such, but it forms no part of the study of old buildings.

Let us write down in our note-book what our thoughts and impressions are at the time we are making our drawings, giving little marginal sketches illustrative of the manner we, at the time, considered the work might have been improved.

As regards the Actual Modus Operandi, it would, I know, be impossible to say anything with which you were not already well acquainted. For sketching a block is convenient. Some prefer cartridge and some Whatman, whilst others would use sketch-books made of metallic paper. A miniature tee-square is sometimes useful for use with the sketch block for setting up one or two guiding lines, but not to unduly assert itself. If, moreover, the tee-square has a scale marked on it, it is useful for plotting out a plan or measured sketch. Some find cross-ruled paper convenient for this purpose. Pencils should be of good quality, and there is more than one way of sharpening and using them. It is impossible to give any character to a sketch if they are too hard or too sharp, and if the lead is brought to an edge rather than a point, one can get a greater latitude of stroke by using either the edge or the broad side.

A sketch is not an elaborately-finished pencil drawing; it is an abstract embodying just those features in the original it is desirable to portray. Certain parts will, therefore, be more or less finished in detail, while the rest are merely indicated by a few expressive lines. The lead pencil must be spared as if it were precious, except at those points of telling shade or accent where it may be rich and black.

A few colour washes or strokes of coloured chalk may sometimes be useful to record the local colouring of material. Some have done excellent work with graphite, treated like a neutral colour wash, for indicating light and shade, but it is not a very sympathetic medium. A few dimensions on a sketch, with one or two sketch details in the margin, make it more useful. It is, of course, unnecessary to insist here on the value of a complete knowledge of perspective.

All Measured Work

should be plotted and drawn out to scale on the spot. Capitals and other curved work may be merely indicated in these drawings and numbered, and large freehand studies in soft pencil, crayon, or charcoal, made and distinguished by corresponding numbers, which will enable one to finish up the scale drawing afterwards if necessary. Do not assume that everything is set out with rigid accuracy, that the plan is always rectangular, that two halves are alike, or that flowing tracery can be set out from centres. If we cannot perceive the absence of the mechanical in old work, we shall be blind to one of its great charms. Always show the stone jointing of the more important and decorative parts, and of the tracery of windows, and clearly indicate the treatment of wall surfaces. In the same way show the jointing and framing of carpentry, and do not hesitate to add explanatory notes to the drawing. Mouldings should always be drawn out full size and carefully measured. Strips of lead and such contrivances for obtaining their contour are worse than useless. Place the arch mould over the jamb mould and show the outline of the caps, and as a rule, make all your full-size details as you would if you were sending them to some mason or carpenter to be executed. They should have a business air about them, not show-drawing look. If, however, you are proposing to send

them in for a prize, arrange them carefully on sheets of uniform size mounted on cardboard, and do not think you are making them look more artistic by some ridiculous and fantastic printing.

Equipment for a Sketching Tour.

The joys and the sorrows, of a sketching tour might well claim an essay to themselves, but it might be of service to indicate some of the items of equipment. Of course, pencils, brushes, instruments, scales, colour box, water bottle, sketch books and sketch blocks, tape, plumb line, and level must be included. A 2ft. rule in your pocket is indispensable; so, too, is a £5 note. Plenty of drawing pins, but do not leave them about on cathedral chairs. A sketching stool—a collapsible one—but not while you are sitting on it. A double elephant is naturally too heavy to carry about, but half a double-elephant board, and a roll of paper to correspond is a useful size. The tee-square will, of course, be made to suit, and if the board is accurate and square, a set square may be dispensed with; it is only one more thing to forget and leave behind. Callipers will be needed to take the diameters of shafts and mouldings, and a stout piece of copper wire serves as a calliper for larger shafts. A 5ft. or a 10ft. jointed rod is also necessary.

By a little ingenuity an American leather satchel can be contrived the size of the drawing board, with pockets of various sizes, and the whole strapped together with a handle-strap, the sketching stool, rod, and tee-square being threaded through the back, and a leather label attached in case you should leave it all in the train. With all this equipment, and a few weeks' stay in a good architectural district, you will no doubt enrich your sketch book, and what is of still more importance, you will increase your knowledge and educate your taste, which will be reflected in those buildings which you may yourself have to design; and recognizing their charm, perhaps some student of the far distant future, whose great-grandparents are not yet born, will measure up your work, now mellowed with age and Nature's tints, and speak sympathetically of those dear old architect's of King Edward's reign, who knew so well how to express their soul in their work.

Correspondence.

St. James's Hall, Piccadilly.

To the Editor of THE BUILDERS' JOURNAL.

LONDON, W.C.

SIR,—I read with some interest the article on St. James's Hall, Piccadilly, in your issue for December 10th. I note that the elevations are stated in your notice as having been designed and erected by the late Mr. Owen Jones. May I correct this? The elevations were designed and carried out by me.—Yours truly, WALTER EMDEN.

Brant Broughton Church, Lincs.

To the Editor of THE BUILDERS' JOURNAL.

NEWARK-ON-TRENT.

SIR,—I should like to correct the reply about Brant Broughton Church, in Lincolnshire. The late vicar, Canon Sutton, was a great archæologist, and his successor, the Rev. A. T. Sutton, is also an archæologist. Canon Sutton personally painted nearly every window in the church, and so, of course, the stained glass is "modern." The chancel was very bad eighteenth-century work. The new chancel is magnificent. The old nave, &c., is as it was, and is very fine. The carved oak is modern. Mr. Bodley's name should be enough to show that the work is of the best description; he personally superintends even the smallest details now.—Yours truly,

HAROLD BAILEY, A.R.I.B.A.

Builders' Notes.

The late Mr. C. B. Ingram, of Ingram, Perkins & Co., timber merchants, 37, Beech Street, E.C., left an estate which has been valued at £141,952.

The Wigan and District Master-Builders' Association held its annual dinner last week. Mr. Ben Blackburn, vice-president, occupied the chair.

The Newport (Mon.) Master-Builders' Association held its annual dinner last week. Mr. George Martin, president of the association, occupied the chair.

The Yorkshire Federation of Building Employers held its annual meeting last week, when Mr. John Dawson, of Huddersfield, was chosen president, and Mr. E. Good, of Hull, was elected vice-president.

The Newcastle, Gateshead and Tyne District Building Trade Employers' Association held its annual dinner last week. Mr. Walter Lowry, president of the Association, occupied the chair.

The South Wales Building Trades Employers' Federation held its quarterly meeting at Swansea recently, Mr. W. M. Blackburn, of Newport, presiding. Messrs. W. M. Blackburn, W. Thomas (Cardiff) and B. Bennet (Swansea) were elected on the executive committee of the National Federation. The secretary (Mr. W. H. Billings, Swansea) was presented with a solid silver tea service on the occasion of his marriage.

Cement Works at Llandulas.—Arrangements have just been completed for the establishment of an important new industry at Llandulas. A company has taken land, and will work the limestone rock, preparing it for conversion into cement. The process employed will be a new one, the limestone being treated in huge retort tubes till it resembles coke, when it will be conveyed to Manchester and converted into cement.

Non-Flammable Wood.—The report of the Non-Flammable Wood and Fabrics Co.—the concern that united the London and the British Non-Flammable Wood Companies—covering the period from January 12th, 1901, to September 30th last, shows a loss of £14,300. The directors point out that they have had to live down the prejudice caused by the action of the Admiralty in discontinuing the use of the wood, but, as the Department is still experimenting, they hope the general adoption of the wood is merely a matter of time.

Wyndham's New Theatre.—Trouble has arisen between Sir Charles Wyndham, the distinguished actor, and Messrs. Kirk & Randall, of Woolwich, the contractors who had in hand the construction of Sir Charles's new theatre in St. Martin's Lane. In consequence of a dispute as to the time occupied by the work, Sir Charles has closed the doors against the contractors and their men, and employed a fresh set of workmen, together with a number of police-constables to avert any possible breach of the peace.

"**Markets**" is the name of a new paper which will make its appearance the first week of the new year. The cost will be one penny weekly. It will give information obtainable to midnight on Friday affecting the commercial markets, and will supply the latest Stock Exchange quotations and points at close of business on Friday. The various markets will be dealt with separately and distinctly, so that each reader will be able to study his own particular market. The sections will be as follows:—(1) General and financial; (2) metal, mineral and engineering; (3) produce, provisions, grains, hops and miscellaneous markets.

Depression in the Building Trade.—Speaking at the annual dinner of the Sunderland and District Building Trades' Association, the president, Mr. J. B. Stott, alluded to the state of affairs that existed in the trade some years ago, when, owing to the fact that the masters were sitting still, the men generally got all they asked for. Dealing with the present outlook, he said the time had come when workmen should see that inflated wages could not be kept up on a falling market, for unless they saw that they would be simply locking the door on the building trade. A man must be blind who could not see that they were going to have depression in their trade as well as in other branches, and the masters and men would have to meet to consider the matter.

The International Fire Exhibition.—As one of the objects of the International Fire Exhibition of 1903—which is being organised under the auspices of the British Fire Prevention Committee, with the co-operation of the National Fire Brigades' Union—is to trace, step by step, the progress of fire-protection in the past and, further, to present an exhaustive picture of everything relating to the subject as it stands to-day, there will be an extensive loan collection, embracing special groups of exhibits having relation to art, history, literature and scientific, municipal and insurance work. To accomplish a full measure of success, it is essential to obtain the co-operation of those public bodies and private individuals who are the owners of works of art, engravings, prints, relics, photographs, models, and the like, relating to great fires in the past and ancient methods of fire-prevention or extinction. Arrangements have been made by which the directors of the Exhibition provide free carriage, space and insurance, and guarantee every possible care and security. The section is also to be suitably installed in galleries specially constructed to hold such exhibits. An office has been opened in the Exhibition Buildings, Earls Court, where enquiries should be addressed to the joint hon. secretaries.

GLASGOW TECHNICAL COLLEGE.

THE Glasgow and West of Scotland Technical College Architectural Craftsman's Society held its usual meeting on Friday evening last (Mr. C. Ernest Munro, president, in the chair), when a special discussion took place on fireproof construction. Through the kindness of the following manufacturers, Stuarts' Granolithic Co., Power Power & Co., The Adamant Co., William Lindsay & Co., The Fireproof Partition Syndicate, Thomas Potter, Mark Fawcett & Co., Homan & Rodgers, The Columbian Fireproofing Co., P. and W. MacLellan & Co., The Carlisle Co. and Rud. A. Stoffert, the members of the committee were supplied about a fortnight beforehand with a large number of sheets descriptive of all that is worth knowing in fireproof floors. The subject was introduced by Mr. Robert W. Horn, A.R.I.B.A., architect, who, after saying a word on the history and development of the earlier forms, passed on to consider the properties of a good fireproof floor. These were (1) good fire-resisting qualities; (2) sufficient strength; (3) good protection for the steel work; (4) moderate weight; (5) moderate depth; (6) fairly well able to withstand the action of cold water when the floor is at white heat; (7) cost (the last but *not* the most important). Floors might be divided into two classes—solid floor and floor with hollow tubes. The lecturer then described a number of the floors in detail, pointing out the good and bad qualities of each. He had a preference for a solid floor. The members who followed mentioned many points which had struck them in business, and the interest centred most in the floors which have been used around Glasgow.

Bricks and Mortar.

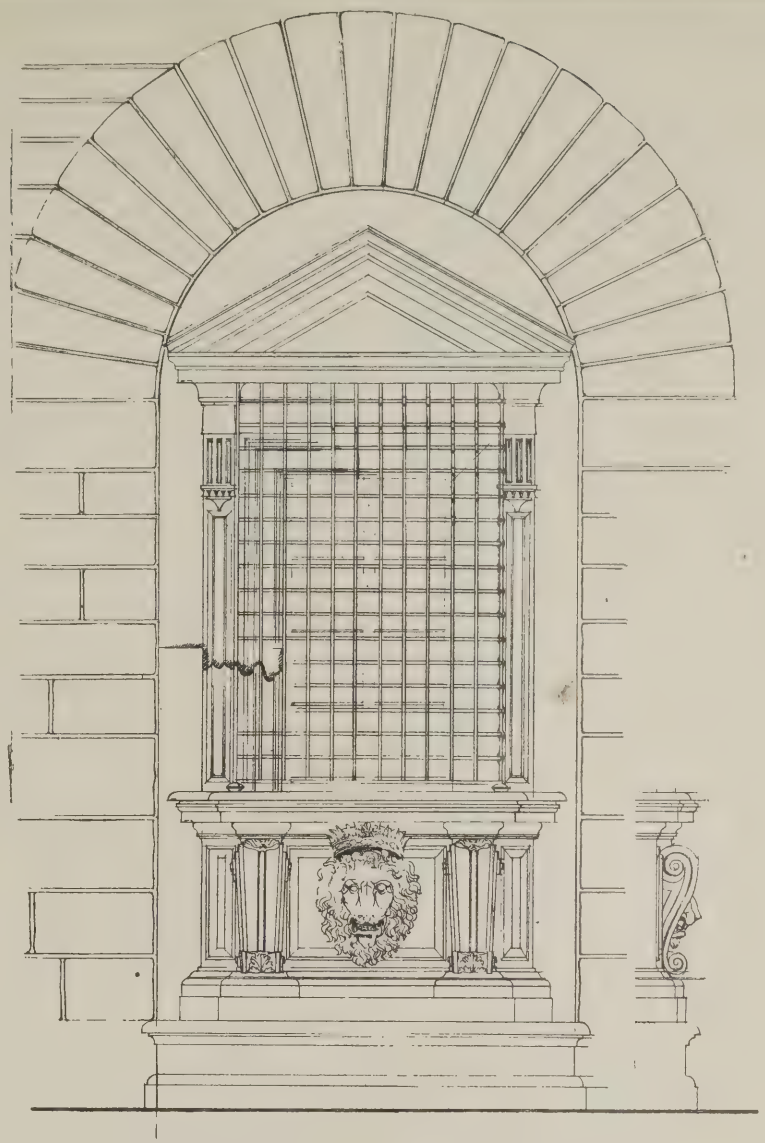
Aphorism for the Week.

Out of that land went forth Asshur, and builded Nineveh.—GEN. x. 11.

Our Plates. SOME particulars of the Mayo School of Art at Lahore, India, were given on p. 284 of our issue for December 10th.—Warmington Church is a good example of Early English church architecture. The tower (a measured drawing of the west door of which, by Mr. Heaton Comyn, is given) has a broach spire and is very well proportioned. The nave roof has oak groining of 1280, and looks in excellent preservation.

"Ian Maclaren" on Liverpool Architecture. SPEAKING recently on the relation of art to city life at the Walker Art Gallery, Liverpool, the Rev. Dr. Watson ("Ian Maclaren") said he never looked around Sefton Park without thinking of the number of ugly houses there and so few distinguished by grace and originality of design, while, stretching towards Aigburth and Wavertree, they could see here and there small houses which were most engaging and artistic in design and the owners of these houses deserved the utmost credit for redeeming the appearance of the district. Liverpool might also be congratulated on the commercial castles which were rising in the city, which in massiveness and grandeur, in gracefulness of carving and beauty of design, compared not altogether unworthily with the places in which the merchants of Florence and Venice did their work. One hoped that the number of these finer buildings in their city might increase till the whole city be a sight worth seeing to the stranger and a delight to themselves. Their Technical School was most perfect and satisfying in its architecture and in its material, down even to the least piece of ornamentation and to the internal metal-work, and the cluster of great buildings in their forum must do a great deal to elevate the taste for architecture in Liverpool. It must be a matter of satisfaction to all persons interested in the Fine Arts to know that the evil days of sculpture in England were over. They owed this escape from decadence and triviality and commonplaceness to the genius of many men, but perhaps especially to Mr. Alfred Gilbert and the late Mr. Onslow Ford. Sculpture had not the same hold upon the people as painting, because it had not been sufficiently popularized. One hoped that St. George's Hall and the other great repositories of their treasures would be yet adorned with the heads of men who deserved well of Liverpool. Of painting he need say nothing, because it was the most popular and winsome of the arts, except to express gratitude to the Art Committee of the municipality of Liverpool for giving them the finest annual exhibition of new pictures outside London, and who were making their permanent gallery not only a joy to the city but a credit to the name of Liverpool far beyond its bounds.

Tooting Fever Hospital: Mr. Tiltman's "Extras." AT the last meeting of the Metropolitan Asylums Board a letter was received from the Local Government Board with reference to the report of Mr. Tiltman, the architect of the Grove Hospital, Tooting, in regard to the sum of £14,000 expended by him on extras without the sanction of the Managers. The letter said: "It is clear that many items which might have been included in the original specification were omitted therefrom, and were ordered or passed by Mr. Tiltman without reference to the Works Committee," and that the Local Government Board considers that Mr. Tiltman did not exercise sufficient supervision over the works; while at the same time the Board cannot avoid the conclusion that the Works Committee might have maintained a more effective control over Mr. Tiltman and the extras ordered by him. The letter concluded: "The Board directs me to enquire what action the Managers propose to take in regard to the expenditure of £14,000 ordered by Mr. Tiltman without authority, and what arrangements it contemplates making with a view to the avoidance of a similar condition of things in future. The Board would point out that the occurrence in this case appears to them only a repetition of much that happened in the case of Brook Hospital." The letter was referred to the Works Committee for report.



WINDOW, PITTI PALACE, FLORENCE.

Archaeological Discovery at Genoa. AN archæological discovery of apparently considerable importance has been made in the Piazza Cavour in Genoa, where the result of excavations recently made has brought to light a large piece of marble bearing the letters "Agripp. T. Potes." An interesting paper was read on this discovery by Signor Gaetano Poggi before the Society of Letters at Genoa. Signor Poggi pointed out that the absence of Roman remains at Genova had induced men of science to regard as a myth the theory that there existed a Genova Romana. Now, suddenly, this scepticism was shaken by the appearance of the marble bases of a building which, though as yet not thoroughly investigated, could be safely affirmed to be an authentic Roman building, and one of great importance from the point of view of art and science on account of the presence of the name Agrippa thereon. From the bricks and cement and marble which had been discovered it was certain that there existed there a floor 30 centimètres below the actual level of the Piazza Cavour. This floor was formed of large flags of Carrara marble about 1 mètre square and 15 centimètres thick. The stone bearing the inscription was one of the square flags composing the floor. Two ends are somewhat broken, thus spoiling the continuity of the inscription, which the lecturer considered to read probably in full "M. Agrippa T. Potest," which then translated would be "Marcus Agrippa in the year of his tribunal power." There was but little doubt that this Agrippa was the celebrated General Marcus Agrippa, the famous victor of Azium, and son-in-law of Augustus, and Signor Poggi informed his audience that he had come to the conclusion that the date of the building was probably 39 B.C. The building, he added, might reasonably be conjectured to have been a "Pretorium" to house the commander of the Roman fleet on his landing at Genoa, the palace, in fact, of the imperial governor.

Pitti Palace, Florence.—The illustration, reproduced above, of a window in this celebrated Florentine palace is from a pencil drawing by Mr. H. Raine.

Engineering Notes.

London Bridge Widening.—The temporary footways at each side are expected to be opened to the public this week.

The Bournemouth Corporation Tramways, which cover about four miles of roads—one-fourth of which, that through the centre of the town, has been constructed on the side slot system, with no overhead wire—were opened last week.

The Foundry Wesleyan Chapel, Hayle, Cornwall, has recently been fitted with the well-known "small tube" hot-water apparatus by Messrs. John King, Ltd., engineers, of Liverpool, who have employed their latest improved economical coil-heater.

The New Infectious Diseases Hospital, Bury, has been supplied by Messrs. E. H. Shorland & Brother, of Manchester, with their patent double-fronted Manchester stoves with descending smoke flues, patent Manchester grates, exhaust roof and inlet ventilators.

A New River Embankment.—The Billingsgate and Leadenhall Markets Committee of the Corporation have presented a report on a suggestion by the London County Council to take joint action for the formation of a river embankment at Shadwell immediately adjoining the Fish Market, to provide, so far as the Council are concerned, for a shaft for the purposes of the Rotherhithe and Ratcliff Tunnel, and to enable the Corporation to have the embankment extended along the length of the river front of the market. The Committee are of opinion that it is most desirable for the future development of the market and property to join in the scheme.

The Standardization Committee, which began its operations in June, 1901, has now reached some very definite results in its labours, and has agreed upon a series of recommendations in several trades using iron and steel, which will shortly be published. There are fifteen different committees and sub-committees, composed of 102 members of the most eminent men in the great iron and steel industries, to which the Government departments contribute fourteen representatives. The sub-committee dealing with structural steel has reported that for "channels" there should be twenty-three standard sections instead of sixty-three previously rolled, the Germans having twenty standard sections and the Americans fourteen. Then in "angles of unequal sides" thirty standard sections in the place of fifty-nine previously rolled; the Germans having fourteen standard sections and the Americans eighteen. In "beams," thirty standard sections in place of forty-nine previously rolled, the Germans having thirty-three standard sections and the Americans seventeen. The committee add that there are at present seventy-one different sizes of tram rails rolled (the difference among them being insignificant), and they propose to reduce the seventy-one to five, ranging from 90lb. to 110lb. It has been estimated by an experienced steel maker that the effect of standardizing these rolled sections for structural steel alone will effect a saving of 5s. per ton, and this should secure an annual saving of £750,000; and it will obviate the waste of capital by having special rolls and tools, in order to produce odd sizes.

Tottenham Municipal Buildings Competition.—The first premium for designs for municipal buildings, public baths and library at Tottenham has been awarded to Messrs. A. S. Taylor and A. R. Jemmett, of Old Queen Street, S.W.; the second to Messrs. Lanchester, Stewart & Rickards, of London; and the third to Messrs. Crouch & Butler, of Birmingham.

THE TESTING OF DRAINS.

THREE EXPERT OPINIONS.

At a recent meeting of the Sanitary Institute the testing of drains was the subject under consideration. Three papers were read respectively by Dr. Louis C. Parkes, D.P.H. (medical officer of health for Chelsea), Mr. J. Osborne Smith, F.R.I.B.A., and Mr. W. C. Tyndale, M.I.C.E.

Dr. Parkes

in referring to section 40 of the Public Health Act, 1875, said: — Indirectly, but not expressly, there appears to be statutory sanction for the testing of any drain in a district, even if it is not actually a nuisance or injurious to health, to ascertain if it is constructed and kept so as not to be a nuisance. If it is a nuisance, there is the power to open the ground and examine the drain, which is conferred by section 41 of the Act, upon the written application of any person to the local authority, stating that the drain is a nuisance or injurious to health (but not otherwise). Any person, in this case, would undoubtedly include the sanitary inspector, who, after reporting to his local authority that the drain is a nuisance, may proceed, after twenty-four hours' written notice to the occupier of the premises (or in case of emergency without notice) to enter the premises, open the ground and examine the drain. This examination would include the application of some reasonable test, and in the event of the drain proving to be in bad condition the local authority shall serve notice on the owner or occupier for the execution of the necessary works.

Moreover, in the metropolis, under sections 40 and 41 of the Public Health (London) Act, 1891, similar power is given. Under these sections the sanitary authority can make the examination without any previous notice in writing from "any person" that the drain is a nuisance or injurious to health.

The nature of the drain test to be employed offers a fruitful field for discussion. Broadly speaking, the test employed should demonstrate defects, if they exist, and should not of itself do any damage in its application.

The Water or Hydraulic Test.—No one will dispute that all *new* drains should be so constructed as to be watertight when tested under a reasonable pressure. With regard to *old* or *existing* drains, theoretically, they also should be watertight when tested under pressure. The argument advanced by the advocates for the application of the water test to all drains is, in my opinion, a sound one—the contention being that house drains are not uncommonly liable to become choked and obstructed. If the obstruction occurs at the lower end of the drain, then the latter becomes filled with sewage under pressure, and is practically put under a water test.

Unfortunately in practice the rendering of an old drain watertight generally involves the relaying of the drain with new pipes and new materials in a new bed. Where serious defects are found, relaying is essential. This may be regarded as the "necessary works" which the owner may be called upon to execute. In such a case the legal point is sometimes raised that there is no power conferred in the Acts enabling sanitary authorities to enforce the substitution of a new system of drainage for an old one—the new system being the modern one, provided for in drainage by-laws, of inspection chambers, interception from the sewer, and the provision of means of ventilation. In my experience, although the magistrates are inclined to uphold this contention, they are usually to be convinced of the necessity for ventilation and interception from the sewer, even if they are not prepared to enforce inspection chambers. I do not know of any authoritative decision upon the point as to whether, when a drain is relayed under notice from a sanitary authority, it must conform with the drainage by-laws or regulations of the authority. I believe it is generally held by lawyers that existing systems of drainage, if not otherwise a nuisance or dangerous to health, are exempted from the operation of by-laws and regulations promulgated after the date of construction of such existing systems, but the case of a "relaid" drain, which is for all practical purposes a new drain, is somewhat different.

The chief difficulty that arises in connection with existing drains is experienced where a drain, although not watertight under pressure, is working well, and is not obviously a nuisance at the time of inspection or examination. Such a drain may be incapable of repair so as to be watertight. It is doubtful whether, under these circumstances, a notice to relay the drain is not somewhat exceeding the powers conferred by any Public Health Act; and this is the view which petty sessional courts are apt to adopt, but where such a drain passes under an inhabited building, and, on testing, it is found that gas escapes into the building, there is no doubt sufficient evidence of danger to health to justify the service of a notice to make the drain gas-tight, as is now required by statute for all drains under cellar-dwellings in London.

Mr. J. Osborne Smith, F.R.I.B.A.,

in the course of his paper said:—

The size of drains, as we know, seriously affects the character of drainage; small bore pipes are now in favour, but that their indiscriminate use produces nuisances will probably be admitted by all who are practically acquainted with them. Small pipes often mean cleaner drains, but also, on the other hand, greater risk of syphonage of traps. This is a point which should be specially considered when testing.

It is conceivable that a drain which will not stand any of the usual tests may, under certain conditions, be efficient for all practical purposes; while another, under different conditions, may satisfactorily hold water and yet be a nuisance.

I do not think it possible, justly, to apply any hard-and fast-rules to the testing of the efficiency of old drainage. Careful discrimination, based upon knowledge, is absolutely necessary to arrive at a true estimate of its character.

We have gone far in the education of the general public in appreciating the importance of sanitary science. We must beware lest, by the extravagance of specialism, we provoke a reaction.

Experience clearly shows that the examination, testing and cleaning of drains, systematically and periodically, are essential to the satisfactory working of any system, however perfect.

Mr. W. C. Tyndale, M.Inst.C.E.,

in the course of his paper said:—

Thirty years ago, or perhaps rather more, no one troubled to question the condition of drains at all; they were merely ducts formed in any sort of way, and so long as liquid found its way in the direction in which it was intended to go nothing more was required. The better kind consisted of stone structures, which in course of time became more or less of brick or filled with solid matter over which the liquid either trickled or from which it soaked away.

After this, drains were made of some class of ware, such as red ware, but it seemed to be generally reckoned that so far from being watertight it was desirable that they should be made with open joints in order that they should convey away the subsoil water if any existed in the surrounding ground.

In 1876 a writer on the then quite new subject of sanitation suggested that it would

be better if drains—more especially when they were under houses—should be laid with stoneware pipes and surrounded with clay puddle to prevent the leakage from the joints soaking into the soil; the idea "caught on," as they say, and since then up to the present time it has been recognised in the majority of cases that foul-water drains generally should be water tight.

The methods of testing are practically only two, the smoke test and the water test; but the water test is the only one to my mind which is satisfactory for new work. It is frequently argued that such a test is an unfair one to place on a drainage system, but those taking this view must surely be forgetful of the fact that should a drainage system stop up, the sewage will apply exactly such a test.

So much for the testing of new work. But turning to the testing of an existing drainage system, the question is found to be fraught with difficulties, the chief one concerning what is right and proper from the health point of view, and at the same time not unfair in other directions. Cases arise where it becomes a question whether the smoke test should not suffice, and whether the application of the water test would not produce defects which do not exist, or aggravate such as do exist so as to render them harmful.

And, in regard to these matters, while I have had nearly thirty years' experience, I am unable to suggest that any hard-and-fast rule should be adopted.

For my own part, I think that when dealing with an existing drainage system of some or many years' standing tests should be applied gradually—that is to say, a beginning should be made with the smoke test, and afterwards the water test, in sections and without too great pressure, should be applied. Such a procedure, while putting no undue strain on a system, should yet give quite sufficient indication of the state of affairs, and would enable any open-minded expert to form a very good opinion of the necessities of the case and what really was desirable to be done.

When forming an estimate from a test of this sort the conditions of the situation of drains and the soil in which they are laid should be taken into account, as these must necessarily be large factors in deciding the desirability or otherwise of renewing or repairing the system of drainage.

I have for a long time been of opinion that stoneware drains are not sufficiently reliable for drains under or near a house. It is a common experience that no matter how carefully drains have been laid and tested, they develop leakage. To what these leakages are due no one can say in all cases; doubtless one reason which has not been sufficiently recognized is expansion and contraction due to varying temperatures in the liquid poured into them. This being so, it is my practice wherever I can manage it to lay all detailed drainage around a building in iron pipes. That this is not considered a very drastic measure is evidenced by the fact that many builders adopt the practice, and I find that even the builders of cheap houses in the district in which I live are doing the same. I must say that although I resent the tyranny of many by-laws, I should not be sorry to see it made obligatory by local authorities to lay all house-drains with iron pipes. This, to my mind, is the only way in which healthy conditions of drains may be insured and all the difficulties which we are met to consider may be avoided.

A Resolution

was passed by the meeting expressing the opinion "that all systems of drainage for conveying sewage should be capable of resisting a pressure of at least 2ft. head of water."

BERMONDSEY HOUSING COMPETITION.

IT is depressing to walk through some of the manufacturing districts of London and to see the wretched hovels in which the people are huddled, to see the miles of sordid houses with all their squalor, and to remember how character is influenced by environment. If it were a matter of option, one would never desire to house human beings amid such surroundings, but unfortunately this becomes a necessity when men need to live near their work and have no means of getting out into the purer air of the country. It is a bad job at best, but there is no help for it. Last week at the Rotherhithe Town Hall the competitive designs were exhibited for a re-housing scheme on the Fulford Street area, Bermondsey. The site is a rhomboid of about 180ft. and 270ft. sides hemmed in by narrow streets. We may here note that "as the cost of the buildings and the return on the outlay will be an important element in determining the competition and the ultimate letting value of the scheme, the necessity of strict economy in construction and avoidance of unnecessary outlay in architectural ornamentation, compatable with good workmanship and material, is urged upon all competitors" (condition 18); also, that "the accommodation must be for as many people as can be conveniently arranged on the site" (condition 19). Messrs. Brocklesby, Marchment & East, of Merton, have been awarded the first premium of £100, and they have certainly managed to squash their rooms together till 980 persons are boxed up in the tenements, but we cannot congratulate them on their plan—it is full of kinks and corners, and on such a miserable scale that the small windows become mere slots and the rooms themselves good-sized kennels (w.c. 4ft. 5in. by 2ft. 4in.). We do not say it is all their fault, for doubtless the Housing Committee are greatly circumscribed by condition 19 (just quoted); but it is hard to see how homes are to be made bearable on such a system. Nor do we consider that the best plan has been selected, and in such a competition as this the plan is everything and the elevation comparatively nothing, for we cannot bother about refinements when it is a question of keeping body and soul together. The second-premiated design (£60) is by Messrs. Humphrey Davis & Co., of London, and the third (£40) by Messrs. Sills & Leeds, of London. Various dispositions of the buildings are adopted by the different competitors. In the winning design the four blocks are placed parallel to the shorter side, with 40ft. yards between them and a garden in the centre; the blocks themselves are planned on the balcony system, in preference to internal staircases, and provide 25 one-roomed tenements, 165 two-room tenements and 45 three-room tenements; the total estimated cost being £42,827. The second-premiated design is five storeys high and also planned on the balcony system. The rooms are of a reasonable size, but of course the persons housed are considerably fewer—210 tenements are



EASTBANK UNITED FREE CHURCH, SHETTLESTON. W. G. ROWAN, I.A., ARCHITECT. (*See next page.*)

provided, estimated to cost £47,181. The third-premiated design comprises 240 tenements, estimated to cost £45,000. Mr. John Slater, F.R.I.B.A., was the assessor in this competition.

Keystones.

Bristol Society of Architects.—A meeting of this Society was held last Monday week, Mr. Joseph Wood in the chair. A paper was read by Dr. Alfred Harvey on "The Later Renaissance Architecture of Bristol."

Wick Road School, Bristol, Competition.—There were five sets of plans submitted for this school. On the recommendation of the Sites and Buildings Committee, the plans of Messrs. Holbrow & Oaten, 9, Clare Street, Bristol, were accepted.

Motherwell Cemetery Competition.—The first premium has been awarded to Mr. Gordon T. Frew, C.E., of 140, West George Street, Glasgow; the second to Messrs. Dodd & Dodd, of Birmingham; and the third to Mr. William Boyce, C.E., of Cathcart.

A Southend Competition.—The first premium in this competition for church, clergy-house and hall at Southend has been awarded to Mr. W. J. Tapper, A.R.I.B.A., the second premium to Messrs. Lucas and Stratton, and the third to Mr. C. A. Nicholson, A.R.I.B.A., all of London.

Discoveries at Fifehead Neville, Dorset.—Further excavations on the site of the Old Roman villa have been suspended owing to the advent of severe frosts; and as it would be unwise to leave the pavements uncovered at this time of the year, everything has been, by Mr. Wingfield Digby's instructions, carefully covered down. It is hoped that early next spring a thorough clearance and examination of the site will be undertaken. Intending visitors are asked to kindly note this.

Sheffield Society of Architects and Surveyors.—A meeting of this Society was held on December 11th, when a paper was read by Mr. Edward Holmes, C.E., on "The Law and Practices with regard to Local Taxation." He said that the ratable value of land had decreased from £39,838,088 in 1871 to £31,312,342 in 1899, whilst during the same period that of buildings had increased from £55,157,300 to £116,435,938, or about 110 per cent. At the latter part of his paper Mr. Holmes briefly alluded to the lines of some of the recommendations of the Royal Commission, and expressed the hope that all members of the Society and the public generally would take a greater interest in the subject, especially in view of pending legislation.

The T-square Club held its second smoking concert of the present season in the foyer of Covent Garden Theatre on Wednesday last. The attendance, owing to the bad weather, was only moderate; but an excellent programme was provided. Mr. Arthur Winckworth's powerful bass voice was heard to advantage in "My Bonnie Barque" and the "Bedouin Love Song," the latter eliciting a double encore. Mr. Arthur Appleby's rendering of "The Pretty Creature" and "Drink to me only with thine eyes" also found appreciation, while Mr. R. V. Tabb gave two excellent 'cello solos. Needless to say, in an entertainment of this kind the humorous element is strong, and Messrs. Walter Churcher (an old favourite), Wilson James, W. P. Dempsey, and Mr. Walter Graham's living marionettes provided ample fare of this description. Mr. Alfred Smythson presided ably at the piano, and Mr. C. Val Hunter proved a genial and efficient chairman.

A new Presbytery (to cost £3,500) is being erected in connection with St. Michael's Roman Catholic Church, Liverpool. The church itself have been to a large extent rebuilt, and schools for the children, accommodating 900, have also been erected.

The View from Richmond Hill.—It is stated that the famous view from Richmond Hill, which is again in danger, notwithstanding the generous efforts in the past of Sir Max Waechter, may yet be saved through the munificence of the same gentleman and his son, Mr. Harry Waechter.

The Polytechnic School of Architecture.—Mr. Thomas Blashill, L.C.C., presented last Friday the medals, book prizes and certificates awarded by the Science and Art Department and the Board of Education to the successful students of the Polytechnic School of Architecture.

An Architect's Failure.—A meeting of the creditors of Walter Cambell, carrying on business as an architect and surveyor under the style of Campbell & Horsley, Deansgate Arcade, Manchester, and formerly at Chapel Walks, Manchester, was recently held at the offices of the Official Receiver. The statement of affairs showed gross liabilities £5,002. Creditors to the amount of £4,432 were shown to be fully secured, and £549 was expected to rank for dividend. The assets were estimated to produce £508. The debtor attributed his failure to losses in building speculations, inability to realize houses he had built, bad debts, falling off of business, and law costs. Mr. G. H. Lawton, chartered accountant, Manchester, was appointed trustee, with a committee of inspection.

Roman Architecture.—In the rooms of the Dundee Institute of Architecture, Science, and Art last week Mr. T. Delgaty Dunn, art master, Technical Institute, delivered a lecture on the "Roman Fora." The chair was occupied by the president, Mr. A. A. Symon, Arbroath. Mr. Dunn took his audience for a walk in imagination round the great Fora of the Romans. He explained in detail the structures that stood in these Fora, giving numerous notes of the history and purpose of the temples, basilicas and monuments. He described the relative position of the different Fora, the primitive condition and subsequent splendour of the Forum Romanum, the Forum Boarium and its architectural remains, the Fora of Cæsar, Augustus, Vespasian, the Nerva, and the culminating complex of Trajan.

Eastbank United Free Church, Shettleston.—This church occupies a site at the junction of Station Road and Old Glasgow Road, Shettleston. The plan consists of a nave, two side aisles and a recess for pulpit and organ. Galleries are provided over the aisles and at the back of the nave. Access is obtained to these from staircases at the vestibule. The nave roof is ceiled and panelled in wood; the other roofs have dressed timbers exposed. The arcades separating the nave and aisles are of dressed stone. The chief feature of the elevation is the tower, which is finished with a red-tiled spire. The principal entrance, as will be seen from the perspective reproduced on the preceding page, is situated in the centre of the front gable, in which is a large traceried window. The style of architecture is late Gothic, treated with great simplicity and reserve. Red stone from the Corncockle quarries is being used for the church externally and internally for jambs of doors and windows and for stone arcade. The church is seated for about 100, and the cost is estimated at about £4,500. The architect is Mr. W. G. Rowan, I.A., 234, West George Street Glasgow. The drawing is by Mr. Alexander McGibbon.

Masters and Men.

Aberdeen Masons.—The building branch of the Aberdeen Operative Masons' and Stonecutters' Union have decided to approach the Masters' Association with a request for an increase of one halfpenny per hour for all builders, and also for blockers, who do not get full time in wet weather.

Masons' Wages at Merthyr.—At a meeting of the South Wales Building Trades Employers' Federation (Councillor W. M. Blackburn presiding) the Merthyr Association reported that an application had been received from their masons for an increase in wages, and that the association had given a counter-notice for decrease.

Trouble at Marle Hall.—Two weeks ago the operative plasterers engaged on the extension of the buildings at Marle Hall, near Llandudno, which is being carried out for the Birmingham Hospital Saturday Fund by a Birmingham firm of builders, gave notice for an increase of wages, and notified their employer that unless the demand was granted they should cease work. The demand, which was in effect to raise the standard rate payable in the Llandudno district to the standard rate of the Birmingham district was refused, and as a consequence the men struck work, and the progress of the work will consequently be delayed, and specially so should the weather remain open. The men, it is said, are acting under the instructions of the Executive Council of the National Association of Operative Plasterers, and contend that inasmuch as the work at Marle Hall is being carried out by a Birmingham firm the rate of wages recognized as the standard in Birmingham ought to be paid. The employers repudiate this claim, and point out that the operatives were engaged at the job, and came from the district. It is further pointed out that plasterers employed by local firms and the operatives in the other branches of the trade are content to work for the standard rate of pay for Llandudno and the district.

Labour in November.—The Labour Department of the Board of Trade report that during November no marked change took place in the general state of employment. Compared with the previous month there has been some further decline in iron and steel works. In the 224 trade-unions, with an aggregate membership of 549,197, making returns, 26,454 (or 4·8 per cent.) were reported as unemployed at the end of November. In the building trades employment generally has declined, especially in London, and continues worse than a year ago. In Scotland, however, it is fair. The percentage of unemployed union members among carpenters and joiners was 4·4 at the end of November, as compared with 4 at the end of October and 3·9 in November, 1901. The percentage for plumbers was 5·7 at the end of November, as compared with 5·8 in October and 4·2 in November, 1901. Twenty-four fresh disputes began in November, involving 6,436 workpeople, of whom 4,937 were directly and 1,449 indirectly affected. Of the disputes one took place in the building trades, and four in metal, engineering and shipbuilding trades. Of the twenty-four new and old disputes, affecting 7,453 workpeople, of which definite results were reported, five, involving 1,029 persons, were decided in favour of the workpeople; ten, involving 4,785 persons, in favour of the employers, and nine, involving 1,639 persons, were compromised. The changes in rates of wages reported during November affected 247,300 workpeople, of whom 245,500 received advances and 1,800 sustained decreases. The nett effect of all the changes was an increase averaging 7¾d. weekly per head of those affected.

Complete List of Contracts Open.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDERS MAY BE OBTAINED.
	BUILDING:		
Dec. 27	Wigan—Twenty-five Cottages	Corporation	Borough Engineer, Municipal Buildings, Wigan.
,, 27	Braemar, Scotland—Additions to Hotel		Jenkins & Marr, 16 Bridge Street, Aberdeen.
,, 27	Handsworth, Staffs—Bricks, Stone, &c.	Urban District Council	H. Richardson, Surveyor, Council House, Handsworth.
,, 27	Monmouth—Repairs, &c, to Hospital	Corporation	Borough Surveyor, Monmouth.
,, 28	Gurwain, near Brynamman, Wales—House and Shop		A. Evans, Sculptor, Sennybridge.
,, 28	Pengam, Wales—Twenty-five Houses		D. Williams, Board Schools, Pengam.
,, 29	Great Ayton, Yorks—Police Station	North Riding County Council	W. H. Brierley, 13 Lendal, York.
,, 29	Jarrow—Alterations, &c., to School	School Board	Clerk of Works, School Board Offices, Jarrow.
,, 29	Belfast—Cement &c	Water Commissioners	R. Hamilton, Secretary, Waterworks Office, Belfast.
,, 29	Romford—Bricks, &c.	Urban District Council	C. T. King, Clerk, Council Offices, Romford.
,, 30	Swinefleet, near Goole—Mortuary Chapel	Parish Council	H. B. Thorp, Architect, Goole.
,, 30	Blaengarw—House		C. Davies, 29 Strand Blaengarw.
,, 31	Christchurch—Additions, &c., to Town Hall	Town Council	E. I. Legg, Borough Surveyor, Town Hall, Christchurch.
,, 31	Bristol—Superstructure of Electricity Works		H. F. Proctor, City Electrical Engineer, Temple Back, Bristol.
,, 31	Dublin—Twenty-seven Labourers' Dwellings	North Dublin Rural District Council.	J. O'Neill, Clerk, North Brunswick Street, Dublin.
,, 31	Doughton—Premises		J. A. Jones, 7 Queen's Terrace, Aberystwyth.
,, 31	Aberystwyth—Premises		J. A. Jones, 7 Queen's Terrace, Aberystwyth.
,, 31	Hull—Thirty-four Artizans' Dwellings	City Improvement Committee	J. H. Hirst, City Architect, Town Hall, Hull.
Jan. 1	Glenville, co. Cork—Priest's House		S. F. Hynes, 21 South Mall, Cork.
,, 1	Dorking—Alterations, &c, to Workhouse	Union Guardians	G. Scales, Clerk, Dorking.
,, 2	Bootle, Lancs—School Superstructure	School Board	T. Cox, 11 Dale Street, Liverpool.
,, 3	Bridlington—Terrace Steps, &c.		Headmaster, Bridlington Grammar School.
,, 3	Grasmere, Westmoreland—Rebuilding Bridge	Urban District Council	J. Bintley, 7 Lowther Street, Kendal.
,, 3	Haverhill, Suffolk—Rebuilding Bridge	West Sussex County Council	A. A. Hunt, County Architect, Sudbury.
,, 5	London, N.E.—Dormitories, Maternity Wards, &c.	Bethnal Green Guardians	W. A. Finch, 76, Finsbury Pavement, E.C.
,, 5	Trowbridge, Wilts—Hospital	Isolation Hospital Committee	J. H. Goodman, Architect, Town Hall Chambers, Reading.
,, 5	Aber, near Caerphilly, Wales—Ninety-five Cottages	Windsor Building Club	E. Thomas, 19 Eirw Road, Porth.
,, 5	Heworth, Durham—Schools	School Board	G. Bell, Westgate Road, Newcastle-on-Tyne.
,, 5	Leytonstone—Schools	School Board	W. Jacques, 2 Fen Court, Fenchurch Street, E.C.
,, 5	Stornoway—Municipal Buildings, Library, &c.		J. Robertson, Architect, Inverness.
,, 6	Acton—Lodge, House, &c.	District Council	D. J. Ebbetts, 242 High Street, Acton.
,, 6	Northwich—Infirmary Extension		J. Holland, Architect, Hayhurst Street, Northwich.
,, 6	Strabane, Ireland—Cottages	Rural District Council	J. E. Sharkie, Clerk, Urban District Council, Strabane.
,, 7	Grays, Essex—Library	Urban District Council	C. M. Shiner, 6, 7 & 8, Crutched Friars, E.C.
,, 7	Manchester—Foundations of Central Fire Station	Watch Committee	W. Windsor, 37 Brown Street, Manchester.
,, 7	Sheerness—Bakery	Economical Society, Ltd.	J. H. Burrows, Secretary, Broad Street, Sheerness.
,, 9	Hull—Covered Market	Corporation	J. H. Hirst, City Architect, Hull.
,, 16	Water Fulford, near York—Asylum		A. Creer, Architect, Guildhall, York.
,, 19	Wemyss Bay and Inverkip, Scotland—Station Buildings	Caledonian Railway Co.	Engineer, Buchanan Street, Glasgow.
	ENGINEERING:		
Dec. 27	Cairo—Bridge		Inspector of Irrigation, 1st Circle, Cairo.
,, 29	Devonport—Overhead Equipment	Corporation	C. Chadwell, 20 Victoria Street, Westminster.
,, 29	Cleethorpes, Lincs—Sea Wall, &c.	Urban District Council	E. Rushton, Engineer, Poplar Road, Cleethorpes.
,, 29	Swindon—Wiring	Corporation	J. G. Griffin, Electricity Works, Swindon.
,, 29	Wigan—Cable	Corporation	Borough Electrical Engineer, Bradford Place, Wigan.
,, 29	Wigan—Switchboard Extension	Corporation	Borough Electrical Engineer, Bradford Place, Wigan.
,, 29	Walsall—Electric Tramcars	Corporation	A. Wyllie, Borough Electrical Engr., Wolverhampton St., Walsall.
,, 30	Blackpool—Machinery, &c, at Refuse Destructor	Cleansing Committee	Cleansing Superintendent, 21 Birley Street, Blackpool.
,, 31	Dorking—Sewerage Works	Rural District Council	W. Rapley, Jun., Surveyor, Clovelly, Tower Hill, Dorking.
,, 31	Maldon—Sinking Well	Joint Hospital Board	P. M. Beaumont, Maldon.
Jan. 1	Bilston—Pipe Trench	Urban District Council	J. P. Wakeford, Surveyor, Town Hall, Bilston.
,, 2	Sunderland—Boiler	Corporation	J. F. C. Snell, Borough Electrical Engineer, Town Hall, Sunderland.
,, 2	Penybont, Wales—Waterworks	Rural District Council	J. & F. J. Hurley, 10 Bridgend Road, Tondu.
,, 5	Glasgow—Electric Motor Equipments	Corporation	J. Young, 88 Renfield Street, Glasgow.
,, 5	Stalybridge—Cable, &c.	Electricity Board	F. Schofield, Clerk, Town Hall, Stalybridge.
,, 5	Kettering—Waterworks, &c.	Urban District Council	T. R. Smith, Engineer, Market Place, Kettering.
,, 5	Tring—Engine House, Rising Main, &c.	Urban District Council	Willcox & Raikes, 63 Temple Row, Birmingham.
,, 5	Falmouth—Pier Improvements	Town Council	L. G. Mouchel, 38 Victoria Street, Westminster.
,, 6	Teignmouth—Gasworks Extensions, &c.	Urban District Council	J. A. Gray, Gas Engineer, Teignmouth.
,, 6	India Office, S.W.—Railway Wagons, Dredger, &c.		Director-General of Stores, India Office, Whitehall, S.W.
,, 7	Lowestoft—Tramways	Corporation	R. B. Nicholson, Town Clerk, Lowestoft.
,, 10	Downpatrick—Cooking Appliances	Lunatic Asylum Committee	Graeme-Watts & Tulloch, 77A Victoria Street, Belfast.
,, 14	Stoke-on-Trent—Electrical Plant	Corporation	P. J. S. Tiddeman, Borough Elec. Engr., Field Pl, Stoke upon-Trent.
,, 14	Devonport—Septic Tanks, Filters, &c.	Town Council	J. F. Burns, 29 Ker Street, Devonport.
,, 15	Egremont, Cheshire—Electrical Plant	Wallasey U.D.C.	J. H. Crowther, Engineer, Great Float, near Birkenhead.
,, 15	Milton-next-Sittingbourne—Waterworks	Urban District Council	G. F. Deacon, 16 Great George Street, Westminster, S.W.
,, 20	Erith, Kent—Filth Screens, Hydraulic Engines, &c.	London County Council	Engineer's Department, County Hall, Spring Gardens, S.W.
,, 21	Wellington, New Zealand—Tramways, &c.	City Council	W. R. Wright, 3 Victoria Street, Westminster.
Feb. 26	Bulawayo, Rhodesia—Electric Tramway	Municipal Council	Davis & Soper, 54 St. Mary Axe, E.C.
	FURNITURE:		
Jan. 3	Halifax—Furnishing School	School Board	W. H. Ostler, 22 Union Street, Halifax.
,, 7	Leytonstone—Furniture for Infirmary	West Ham Union Guardians	F. E. Hilleary, Clerk, Workhouse, Leytonstone, N.E.
	IRON AND STEEL:		
Dec. 27	King's Lynn—Stores	Corporation	H. J. Weaver, Borough Engineer, King's Lynn.
,, 27	London, E.C.—Stores	Thames Conservators	R. Philipson, Thames Conservancy Offices, Victoria Embankment, E.C.
,, 29	Romford—Stores	Urban District Council	J. Turvey, Surveyor, Council Offices, Romford.
,, 29	Belfast—Hardware, Castings, &c.	Water Commissioners	R. Hamilton, Secretary, Waterworks Office, Belfast.
Jan. 1	Grantown, Scotland—Iron Fencing		D. Grant, Solicitor, Grantown.
,, 1	Bilston—Cast-iron Pipes	Urban District Council	J. P. Wakeford, Surveyor, Town Hall, Bilston.
,, 5	Sheffield—Steel and Ironwork for Retort Bench	United Gas Light Co.	J. W. Morrison, Engineer, Commercial Street, Sheffield.
,, 6	Southall, Middlesex—Fencing and Gates	Urban District Council	R. Brown, Engineer, Public Offices, Southall.
,, 6	Strabane, Ireland—Fences and Gates	Rural District Council	J. E. Sharkie, Clerk, Council Offices, Strabane.
,, 12	London, S.E.—Stores	Camberwell Borough Council	W. Oxtoby, Borough Engineer, Town Hall, Camberwell, S.E.
,, 13	Christiania—Steel Rails	Norwegian State Railways	Director of Norwegian State Railways, Christiania.
,, 15	Ottawa—Rails		L. K. Jones, Secretary, Department of Railways, Canals, Ottawa.
Feb. 6	Cape Town—Locks		Agent-General for Cape Colony, 100 Victoria Street, S.W.
	PAINTING AND PLUMBING:		
Dec. 27	London, E.C.—Paints, Varnishes, Oils, &c.	Thames Conservators	R. Philipson, Secretary, Offices, Victoria Embankment, E.C.
,, 29	Belfast—Paints, Oils, &c.	Water Commissioners	R. Hamilton, Secretary, Waterworks Office, Belfast.
,, 29	Bootle, Lancs—Painting	Corporation	Borough Engineer, Bootle.
,, 29	Jarrow—Painting and Cleaning Offices	School Board	T. H. Spencer, Clerk, Jarrow.
,, 29	Morley—Painting at Baths	General Purposes Committees	W. E. Putman, Borough Engineer, Town Hall, Morley.
Jan. 12	London, S.E.—White Lead, Paints, Oils, &c.	Camberwell Borough Council	W. Oxtoby, Borough Engineer, Town Hall, Camberwell, S.E.
	ROADS AND CARTAGE:		
Dec. 27	Tottington, Lancs—Street Works	Urban District Council	L. Kenyon, Surveyor, Council Offices, Tottington
,, 27	Blackburn—Excavating and Forming Bowling Green	Park Committee	W. Stubbs, Borough Engineer, Municipal Offices, Blackburn.
,, 27	Burnley—Paving, &c.	Corporation	Borough Surveyor, Burnley.
,, 27	Swindon—Street Works	Corporation	H. J. Hamp, Borough Surveyor, Town Hall Swindon.
,, 27	Handsworth, Staffs—Materials	Urban District Council	H. Richardson, Surveyor, Council House, Handsworth.
,, 29	Romford—Materials	Urban District Council	J. Turvey Surveyor, Romford.
,, 29	Guildford—Making-up	Rural District Council	J. Anstee, Surveyor, Commercial Road, Guildford.
,, 29	Kingston-on-Thames—Granite		J. Edgell, Clerk, Union Offices, Coombe Road, Kingston-on-Thames.

Complete List of Contracts Open — *continued.*

DATE OF DELIVERY.		WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDERS MAY BE OBTAINED.
		ROADS AND CARTAGE—*cont.*		
Dec.	29	Middlesbrough—Street Works	Streets Committee	F. Baker, Borough Engineer, Municipal Buildings, Middlesbrough.
,,	29	West Hartlepool—Street Works	Corporation	J. W. Brown, Borough Engineer, West Hartlepool.
,,	30	Sale—Street Works	Urban District Council	W. Holt, Engineer, Council Offices, Sale.
,,	30	New Malden—Team Labour	Urban District Council	T. V. H. Davison, Engineer, Council Offices, New Malden.
,,	31	Erdington, near Birmingham—Road Works	Urban District Council	H. H. Humphries, District Engineer, Public Hall, Erdington.
,,	31	Horsham, Sussex—Road Materials and Cartage	West Sussex County Council	W. B. Purser, 4 Worthington Road, Horsham.
,,	31	Oxford—Bass Broom Heads	Corporation	Sanitary Inspector, Town Hall, Oxford.
,,	31	Blackpool—Tar Asphalting Pavement	Corporation	J. S. Brodie, Borough Engineer, Town Hall, Blackpool.
,,	31	West Didsbury, Lanks—Street Works	Withington U.D.C.	A. H. Mountain Surveyor, Town Hall, West Didsbury.
Jan.	3	Wakefield—Street Works	Corporation	City Surveyor, Town Hall, Wakefield.
,,	3	Felixstowe—Making-up	Urban District Council	S. E. Fisher, Surveyor, Town Hall, Felixstowe.
,,	6	Hounslow—Road Works	Heston and Isleworth U.D.C.	P. G. Parkman, Surveyor, Town Hall, Hounslow.
,,	6	Waterloo, Lancs—Street Works	Urban District Council	F. S. Yates, Surveyor, Town Hall, Waterloo.
,,	8	London, S.E.—Tar Paving, &c.	Southwark Union Guardians	G. D. Stevenson, 13 and 14 King Street, Cheapside, E.C.
,,	10	Dollar, Scotland—Causewaying	Town Council	Town Clerk, Dollar.
,,	12	London, S.E.—Materials and Cartage	Camberwell Borough Council	W. Oxtoby, Borough Engineer, Town Hall, Camberwell, S.E.
,,	27	Capetown—Streets		Davis & Soper, 54 St. Mary Axe, E.C.
		SANITARY:		
Dec.	27	King's Lynn—Stoneware Pipes and Disinfectants	Corporation	H. J. Weaver, Borough Engineer, King's Lynn.
,,	29	Romford—Stoneware Pipes, &c.	Urban District Council	J. Turvey, Surveyor, Council Offices, Romford.
,,	30	Lowestoft—Scavenging	Rural District Council	F. Peskett, 148 London Road, Lowestoft.
,,	30	Wealdstone—Sewage Outfall Works	Urban District Council	C. N. Lailey, 6 The Sanctuary, Westminster.
,,	31	Dorking—Sewerage Works	Rural District Council	W. Rapley, jun., Clovelly, Tower Hill, Dorking.
Jan.	2	Spondon, Shardlow, Derbyshire—Scavenging	Shardlow R.D.C.	J. W. Newbold, Clerk, Becket Street, Derby.
,,	5	Bispham, Lancs—Sewerage Works	Carleton Joint Sewerage Board	A. Hindle 44 Abingdon Street, Blackpool.
,,	5	Bispham, Lancs—Pipes, &c.	Carleton Joint Sewerage Board	A. Hindle, 44 Abingdon Street, Blackpool.
,,	5	London, N.—Sewers, &c.	Hornsey U.D.C.	E. J. Lovegrove, Engineer to Concl., Southwood Lane, Highgate, N.
,,	5	Tring—Sewage-Disposal Works	Urban District Council	Willcox & Raikes, 63 Temple Row, Birmingham.
,,	5	Watlington, near Henley-on-Thames—Sewers	Henley R.D.C.	J. Taylor, Sons and S. Crimp, 27 Great George Street, Westminster
,,	10	Shalford, Guildford—Scavenging	Hambledon R.D.C.	F. Smallpiece, 138 High Street, Guildford.
,,	12	London, S.E.—Stoneware Pipes, Disinfectants, &c.	Camberwell Borough Council	W. Oxtoby, Borough Engineer, Town Hall, Camberwell, S.E.
,,	14	Devonport—Septic Tanks, Filters, &c.	Town Council	J. F. Burns, 29 Ker Street, Devonport.
,,	20	Erith, Kent—Filth Screens, &c.	London County Council	Engineer's Department, County Hall, Spring Gardens, S.W.
		TIMBER:		
Dec.	27	King's Lynn—Timber	Corporation	H. J. Weaver, Borough Engineer, King's Lynn.
,,	27	London, E.C.—Timber	Thames Conservators	R. Phillpson, Secretary, Offices, Victoria Embankment, E.C.
,,	29	Belfast—Timber	Water Commissioners	R. Hamilton, Secretary, Waterworks Office, Belfast.
,,	31	Oxford—Timber	Corporation	City Engineer. Town Hall, Oxford.
Jan.	3	York—Creosote Oil	North-Eastern Railway Co.	E. H. Clark, Stores Superintendent, Gateshead.
,,	6	Strabane, Ireland—Fences and Gates	Rural District Council	J. E. Sharkie, Clerk Council Offices, Strabane.
,,	7	London, E.—Timber	Poplar Union Guardians	G. H. Lough, 45 Upper North Street, Poplar, E.

List of Competitions Open.

DATE OF DELIVERY.		DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Dec.	31	Ashton-in-Makerfield—Infectious Diseases Hospital	Urban District Council	T. Burgess, Surveyor, Council Offices, Ashton-in-Makerfield.
Jan.	15	Kingston-on-Thames—Cottage Homes for Children	£25, £15, £10.	J. Edgell, Clerk to Guardians, Coombe Lane, Kingston-on-Thames.
,,	20	Workington—Public Library	£25, £15, £10.	W. L. Eaglesfield, Borough Surveyor, Workington.
,,	31	Cape Town—University Buildings	£400, £200, £100.	Agent-General for the Cape of Good Hope, London.
,,	31	Hull—Town Hall Extension	£300, £200, £100.	E. Laverack, Town Clerk, Town Hall, Hull.
Feb.	13	Patras, Greece—Church	£400, £160, £80.	Committee for new Church of St. Andrew, Patras, Greece.
,,	20	Sutton Coldfield—Town Hall	£50, £30, £20.	W. A. H. Clarry, Borough Surveyor, Council House, Sutton Coldfield.
,,	28	Bridgwater—Appliances for Silt Disposal		W. T. Baker, Town Clerk, King Square, Bridgwater.
March	31	Hull—Extension of Town Hall	£300, £200, £100.	E. Laverack, Town Clerk, Town Hall, Hull.
No date.		Kettering—Free Library	£60, £40, £25.	J. Bond, Clerk, Council Offices, Kettering.
,,		Pontypridd—Public Offices		J. C. Jones, Clerk, Urban District Council, Pontypridd.

New Patents.

These patents are open to opposition until February 3rd.

1901.—Drain Scourers.—24,344. J. CORBETT, borough engineer, Town Hall, Salford. The device consists of a water motor, which is put into the drain and supplied by a hose-pipe. This motor drives vulcanised india-rubber discs, which scour the drain and, in addition, screw their way forward and so travel with the machine.

Refuse Destructors.—26,410. H. N. LEASK, Hartington Road, Chorlton-cum-Hardy, Lancs. Over each cell is a flue with a steam boiler above. The refuse is discharged through a hopper on to an endless chain which travels through the cell and deposits the clinker at the further end. Large quantities of refuse can thus be consumed with a minimum of labour.

1902.—Machine Cutter for Mouldings in Stone.—125. F. TEBBS, 27, Warriner Gardens, Battersea, London, S.E. The cutting tool is attached to the end of a timber pendulum, which is connected with a sliding carriage driven by power. Different mouldings are cut with different cutters and by varying the effective length of the pendulum.

Water Regulators for Nozzles.—1,714. H. W. PEARSON, Woodland House, Woodland Road, Tyndalls Park, Bristol. A ball is arranged in a cup casing in the nozzle and a push-spindle is provided at the side. When the latter is pushed in, the ball is raised from its seat and water allowed to pass.

Separators for Brick Cutting-Tables.—4,308. H. TUKE, 8, Roundhay View, Harehills Lane, Leeds. The device consists of a double instead of a single row of pallets, which hold each brick top and bottom. By a sliding movement the separation of the bricks after being cut is assured.

The following specifications are published to-day and are open to opposition until February 10th. The names in italics are those of communicators of inventions.

1901.—21,952, HONEYWOOD, machinery for crushing cement, &c. 25,351, WADKIN, woodworking machinery with rotary cutters. 25,505, STANLEY, manufacture of tiles. 25,816, EADES, safety hoists. 26,321, WALLACE, ventilating traps and covers for roadways, basements, &c.

1902.—101, CASSELS, lavatories. 259, THOMSON, valves for regulating hot and cold water to baths, &c. 814, HUGHES, fastening for roofing slates. 830, FERRELL, wood preserving and fireproofing. 1,968, TAYLOR & HUBBARD, valves, cocks, &c. 8,033, TRAVERS, HOWDLE & JACKSON, rail-joint fastener for street or permanent way. 14,493, COCKING, appliance for forward drying of bricks. 15,698, LEBLANC, ratchet mechanism for wood and metal working tools. 16,497, LARSSON & GREEN, sand-distributing devices for roads. 16,997, LAKE (*Warren Brothers Co.*), apparatus for preparing ingredients of bituminous, macadam, and other roadways. 17,083, GERARDIN, rulers and rules. 18,211, MENZIES, automatic safety brake for lifts. 19,089, LIEPMANN, veneered mouldings. 19,243, FLOOD, tiles and coverings for floors, &c. 19,806, AMES, drainage and inspection box for tramways. 19,979 and 19,980, HYDE (*Union Lead and Oil Co.*), white lead. 20,487, BÄHR, presses for stove tiles. 20,933, TÜSCHEL, varnishes. 21,103, PLANER, descending stages for theatres, &c. 21,107, MATTHEW, compound for removing deposits from paintwork, &c. 21,154, LEUSCHER & THOMANN, presses for tiles. 21,503, SAVAGE, hot-water heating and distributing systems. 21,646, RINGEL, embossed material for walls, ceilings, &c. 22,268, HERDMAN, hinges for levelling staves, &c.

Tenders.

Information from accredited sources should be sent to "The Editor" at latest by noon on Monday if intended for publication in the following Wednesday's issue. Results of Tenders cannot be accepted unless they contain the name of the Architect or Surveyor for the work.

Addressed postcards on which lists of tenders may be stated will be sent post free on application to the Manager, BUILDERS' JOURNAL, *Effingham House, Arundel Street, Strand, W.C.*

Buncrana.—Accepted for the erection of two dwelling-houses, Victoria Park, for Mrs. Moore. Mr. J. P. McGrath, architect, Commercial Buildings, Foyle Street, Londonderry:—

Robert Colhoun, Strand Road Londonderry £1,010

Buncrana.—Accepted for the erection of three dwelling-houses, Victoria Park, for Mr. F. J. Simmons. Mr. J. P. McGrath, architect, Commercial Buildings, Foyle Street, Londonderry:—

Robert Colhoun, Strand Road, Londonderry .. £1,455

Ealing, W.—For the erection of D'Eresby House, Ealing Common, for D'Eresby House, Ltd. Messrs. Palgrave & Co., architects, Westminster, S.W. Bills of quantities by Mr. George Stephenson:

Spencer Santo & Co., Ltd.	£25,250	0	0
Patman & Fotheringham, Ltd.	23,134	0	0
Foster Brothers	22,878	0	0
C. Miskin & Sons	22,491	0	0
H. Hedges	21,723	2	4
Haslemere Builders, Ltd.	20,867	0	0
A. G. Crisp	20,750	0	0
S. E. Moss	20,025	10	0
Speechley & Smith	19,800	0	0
Bailey & Fry	19,322	10	0
Batley, Son & Holness	19,197	0	0
Chambers Brothers	18,221	0	0
C. H. Hunt & Sons	18,191	0	0

Hounslow (Middlesex).—For new roads, sewers, footpaths and kerbing, &c., on the Kingsley Estate, Hounslow. Mr. W. A. Davies, A.M.I.C.E., engineer:—

J. Macklin	£1,768
S. Kavanagh	1,658
Mowlem & Co.	1,619
Lawrence & Thacker	1,522

Hounslow (Middlesex).—For four shops corner of Lambton Road, High Street, Hounslow, for Mr. A. Ramsden. Mr. W. A. Davies, architect, Town Hall Chambers, High Street, Hounslow. Quantities supplied:—

H. Eydmann	£5,700	J. Dorey & Sons	£5,500
C. Emmett	5,575	W. Wisdom	5,395
J. Macklin	5,552	T. Hiscock	5,250
T. Nickols	5,540	W. Irwin	5,250

Londonderry.—Accepted for the erection of a villa at Shantallow, for Mr. F. McLaughlin, M.D., J.P. Mr. J. P. McGrath, architect, Commercial Buildings, Foyle Street, Londonderry:—

M. Sweeny, Strand Road, Londonderry.. £1,455

Londonderry.—Accepted for alterations and repairs to houses, Fahan Street and Bogside, Londonderry, for Mr. R. Gallagher. Mr. J P. McGrath, architect, Commercial Buildings, Foyle Street. Londonderry:—

Robert Colhoun, Strand Road, Londonderry .. £360

London.—For works at Rosebery Avenue School, for the London School Board. Mr. T. J. Bailey, architect:—

J. & M. Patrick	£3,248	0	
Maxwell Brothers, Ltd.	2,180	0	
E. Lawrance & Sons	1,994	0	
J. W. Falkner & Sons	1,973	0	
G. S. S. Williams & Son	1,920	0	
Stevens Brothers	1,874	0	
Johnson & Co.	1,850	0	
J. Peattie	1,778	0	
Durbin & Katesmark	1,749	0	
R. P. Beattie	1,748	7	
J. Willmott & Sons*	1,705	0	

* Recommended for acceptance.

London.—For the erection of children's receiving home and ambulance station at Tooting Beck Asylum, for the Metropolitan Asylums Board:—

Foster Brothers, Norwood Junction S.E. .. £17,765 0 0

Leslie & Co., Ltd., Kensington Square, W. .. £16,961 0 0
W. Downs, Walworth Road, S.E. .. 15,463 0 0
J. Appleby & Sons, Lambeth, S.E. .. 14,120 0 0
C. Miskin & Sons, Romsland, St. Albans .. 13,958 0 0
W. Johnson & Co., Ltd., Wandsworth Common, S.W. .. 13,790 0 0
J. & M Patrick, Wandsworth, S.W. .. 12,799 0 0
Cropley Brothers, Ltd.,* High Street, Epsom .. 12,599 0 0
P. Banyard, Cambridge .. 12,545 10 8

[Architect's revised estimate, £15,465.]

London.—For works at Upper Kennington Lane School, for the London School Board. Mr. T. J. Bailey, architect:—

Martin, Wells & Co., Ltd.	1,323	E. P. Bulled & Co.	1,157
W. J. Mitchell & Son	1,239	J. Garrett & Son	1,149
W. Johnson & Co., Ltd.	1,224	J. & C. Bowyer	1,127
Rice & Son	1,206	General Builders, Ltd.	1,114
W. Smith & Son	1,198	Lathey Brothers	1,097
T. D. Leng	1,194	J. & M. Patrick, London and Rochester*	1,093
E. Triggs	1,173		

* Recommended for acceptance.

London, N.W.—For alterations and additions, &c., at 315 Kentish Town Road, N.W., for the London and Provincial Banking Co., Ltd. Mr. W. Batting, architect, 7 John Street, Adelphi, W.C. Quantities by Mr. C. O. Law, 5 Arundel Street, Strand, W.C.:—

W. B. Ball	£1,661	S. Bird & Co.	£1,498
Williams & Carnall	1,567	Gould & Brand	1,479
A. J. Bellew	1,514	Sims & Wood	1,426
Marchant & Hurst	1,499	A. A. Webber	1,379

London.—For works at Brockley Road School, for the London School Board. Mr. T. J. Bailey, architect:—

J. Appleby	£1,824	W. J. Mitchell & Son	1,736
J. Garrett & Son	1,808	T. D. Leng	1,706
W. Johnson & Co., Ltd.	1,793	J. Smith & Sons, Ltd.	1,693
F. & H. F. Higgs	1,784	J. & C. Bowyer	1,669
W. Downs	1,776	E. Triggs	1,669
E. P. Bulled & Co.	1,772	General Builders, Ltd.*	1,612
Rice & Son	1,741		

* Recommended for acceptance.

Margate.—For the construction of a new engine and boiler-house, engineer's shop, office, weighbridge, stables, engineer's-house, and four cottages at Uffington, one mile from Adisham Station on the main line of the London, Chatham and Dover Railway, for the Town Council. Mr. Albert Latham, M.I.C.E., engineer, Town Hall, Margate:—

Padget, Margate	£9,454	Brown, Margate	£7,557
Paramor, Margate	9,308	Game, Whitstable	7,474
Denne, Walmer	8,988	Adcock, Dover	7,416
Smith, Norwood, S.E.	8,963	Denne, Deal	7,312
Wing, Birchington	7,768	Browning,* Canterbury	6,986
Martin, Ramsgate	7,610		

* Accepted.

Middlesbrough.—For the erection and completion of two ward pavilion blocks, entrance lodge, and other works in connection therewith at the sanatorium, West Lane, Middlesbrough, for the Sanatorium Committee. Mr. Frank Baker, C.E., F.G.S., borough engineer:—

A. Lyons, St. Peter's Works, Norton, Malton	£9,497	14	0
W. A. King, King's Road, North Ormesby	9,090	10	10
Allison Brothers, Marsh Road	9,088	0	0
H. Walker, Limes Road	9,041	6	2
S. Coates, Ormesby Road	8,942	0	0
Newby & Co., Durham Street	8,794	11	10
Bastiman Brothers, Albert Road	8,721	15	4
Blackett & Son, Darlington	8,565	10	0
Hudson Brothers,* Woodlands Road	8,530	17	3

* Accepted.

St. Leonards-on-Sea.—For the enlargement of Hollington Schools, for the Hastings United District School Board. Mr. Charles A. Pigott, architect and surveyor, Saxon Chambers, St. Leonards. Quantities by architect:—

Gann & Co., Whitstable	£3,200	0	
Tapner, Simmonds & Co., Hastings	3,150	0	
F. Tingle, Hastings	3,091	0	
J. Parker, Hastings	3,073	3	
C. Hughes, Mercatoria	3,062	0	
A. H. White	2,999	0	
H. E. Cruttenden & Son	2,997	0	
Padgham & Hutchinson	2,925	0	
J. Harvey	2,875	0	
H. Ashdown, Hollington	2,873	5	
J. M. Lester,* Earl Street Works, Hastings	2,797	0	

* Accepted. [Rest of St. Leonards.]

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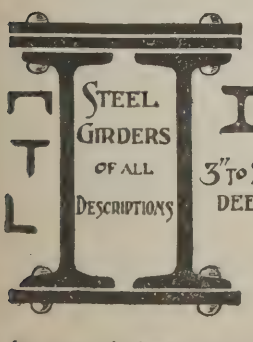
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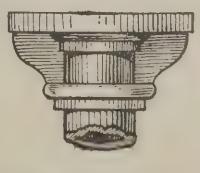
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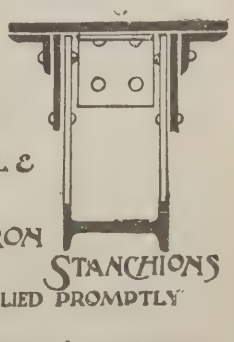


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Coming Events.

Saturday, Dec 27.
ROYAL INSTITUTION.—Prof. H. S. Hele-Shaw on "Locomotion, on the Earth, through the Air, in the Water"—I., 8 p.m.

Tuesday, Dec. 30.
ROYAL INSTITUTION.—Prof. H. S. Hele-Shaw on "Locomotion, on the Earth, through the air, in the Water"—II., 3 p.m.

Friday, Jan. 2.
INSTITUTION OF JUNIOR ENGINEERS.—Mr. H. M. Routhwaite, M.I.M.E., on "Marine Boilers: a Consideration of the Relative Values of different types," 8 p.m.

Monday, Jan. 5.
ROYAL INSTITUTE OF BRITISH ARCHITECTS.—Business meeting at 8 p.m.
LIVERPOOL ARCHITECTURAL ASSOCIATION.—Mr. C. Harrison Townsend on "Mosaic Work."

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Lead, white, ground, carbonate	do.	1	4	10		—	
Do. red	do.	1	0	4½			
Linseed Oil, barrels	do.	1	4	3		—	
Petroleum, American	per gal.	0	0	6	0	0	6¼
Do. Russian	do.	0	0	4⅛	0	0	4¼
Pitch	per barrel	0	7	0		—	
Shellac, orange	per cwt.	6	4	0		—	
Soda, crystals	per ton	3	2	6	3	5	0
Tallow, Home Melt	per cwt.	1	10	0	1	11	0
Tar, Stockholm	per barrel	1	0	6		—	
Turpentine	per cwt.	1	19	3		—	

METALS.

Copper, sheet, strong	per ton	65	0	0		—	
Iron, Staffs., bar	do.	6	5	0	8	10	0
Do. Galvanised Corrugated sheet	do.	11	10	0	11	12	6
Lead, pig, Soft Foreign	do.	10	15	0	10	16	3
Do. do. English common brands	do.	11	1	3		—	
Do. sheet, English 3lb. per sq. ft. and upwards	do.	13	10	0		—	
Do. pipe	do.	14	0	0		—	
Nails, cut clasp, 3in. to 6in.	per ton	9	5	0		—	
Do. floor brads	do.	9	0	0		—	
Steel, Staffs., Girders and Angles	do.	5	15	0	6	5	0
Do. do. Mild bars	do.	6	10	0	7	0	0
Tin, Foreign	do.	115	15	0	116	5	0
Do. English ingots	do.	116	0	0	117	0	0
Zinc, sheets, Silesian	do	24	0	0		—	
Do. do. Vieille Montaigne	do.	24	0	0		—	
Do. Spelter	do.	19	15	0	20	0	0

TIMBER.

Soft Woods.

Fir, Dantzic and Memel	per load	1	13	0	3	0	0
Pine, Quebec, Yellow	per load	5	5	0	6	5	0
Do. Pitch	do.	3	0	0	3	4	0
Laths, log, Dantzic	per fath.	4	10	0	5	10	0
Do. Petersburg	do.	8	10	0		—	
Deals, Archangel 2nd & 1st	per P. Std.	10	5	0	15	5	0
Do. do. 4th & 3rd	do.	10	5	0	15	10	0
Do. do. unsorted	do.	5	12	6	6	10	0
Do. Riga	do.	6	15	0	12	10	0
Do. Petersburg 1st Yellow	do.	16	10	0		—	
Deals, Petersburg 2nd Yell.	per P. Std.	9	0	0	17	5	0
Do. do. White	do.	18	15	0	11	10	0
Do. Swedish	do.	5	15	0	15	15	0
Do. White Sea	do.	12	15	0	15	5	0
Do. Quebec Pine, 1st	do.	17	15	0	18	5	0
Do. do. 2nd	do.	13	0	0		—	
Do. do. 3rd &c.	do.	10	15	0	12	15	0
Do. Canadian Spruce 1st	do.		—		12	0	10
Do. do. 3rd & 2nd	do.	7	10	0	10	5	0
Do. New Brunswick	do.	7	15	0	8	0	0
Battens, all kinds	Per P. Std.	6	10	0	16	0	0
Flooring Boards 11in. prepared, 1st	per square	0	9	9	0	11	6
Do. 2nd	do	0	7	9	0	11	3
Do. 3rd &c.	do	0	7	3	9	9	0

Hard Woods.

Ash, Quebec	per load	3	12	6		—	
Birch, Quebec	do.	3	12	6	3	17	6
Box, Turkey	per ton	15	0	0	20	0	0
Cedar, Cuba	per ft. sup.	0	0	3⅜	0	0	5
Do. Honduras	do.	0	0	4		—	
Do. Tobasco	do.	0	0	4		—	
Elm, Quebec	per load	4	0	0	5	2	6
Mahogany, Average Price for Cargo, Honduras	per ft. sup.	0	0	5		—	
Do. African	do.	0	0	3		—	
Do. St. Domingo	do.	0	0	3¼	0	0	6
Do. Tobasco	do.	0	0	4		—	
Do. Cuba	do.	0	0	4¼	0	0	8
Oak, Dantzic and Memel	per load	3	5	0	3	15	0
Do. Quebec	do.	6	5	0	6	10	0
Teak, Rangoon, planks	do.	16	0	0	17	10	0
Wainscot, Riga (Baulk)	do.	3	15	0	5	15	0
Walnut, Odessa Crown	do.	3	15	0	5	15	0
Do. American	per ft. cube	0	2	0		—	

The Sale of Church Relics.—Earl Stanhope, president of the Kent Archæological Society, has asked Mr. Payne, the secretary of the Kent Archæological Society, to withdraw his opposition to the sale of the Elizabethan stoup belonging to the parish church of Malling, Kent. Dr. Tristram delivered his judgment in favour of the sale.

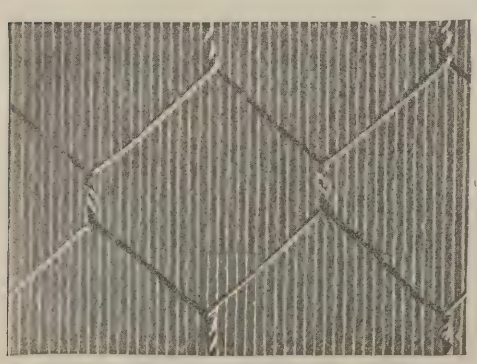
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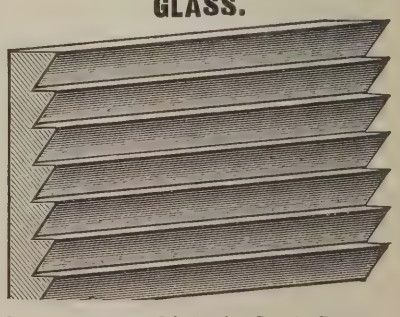
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An Architectural Causerie.

The Past Year. A HISTORY of modern art or architecture is a history of dispute. Artists and architects are in a constant state of disagreement either among themselves or with the public and its officials. That is not a happy condition for anybody, but there is no hope for a change to peace and agreement whilst art and architecture are regarded as added embellishments instead of being intrinsic qualities. What could be more indicative of this fact than "art" furniture, as if that should be more beautiful than any other furniture. We are, indeed, in a pretty dilemma, and it is difficult to see the way out of it. On the one hand we have a so-called cultured class that looks on "art" as its own possession, and really has a certain perception of good taste, while on the other hand is the great mass of the people whose taste is atrocious and whose ideas about art and architecture find satisfaction in the most degraded, foolish and ugly things. That is the position of modern times, and that is why so much dispute takes place among us. Past ages may cast a glamour over themselves, but they witnessed no such disputing as ours. We cannot be blamed for all this arguing, for each man doubtless acts as seems right to him; but the fact remains, and it is a disquieting fact.

Let us look into what has been done in regard to architecture in this country during the past year. There was the Liverpool Cathedral controversy—the Executive Committee holding on doggedly to Gothic and all of us who thought that an injustice hammering away at the Committee till at last they gave in, abandoned their restriction to one style, and appointed Mr. Bodley and Mr. Shaw to advise them; and all this, be it remembered, after the dispute about the site. Then at Manchester the proposed extension of the Royal Infirmary on the Piccadilly site was the subject of a very long debate, though it ended pleasantly enough in the decision to build a new infirmary at Stanley Grove. At Edinburgh there was complaint to make about the new officers' quarters at the Castle. At York the Corporation proposed to pull down the old gateway, which was protested against by the Dean and Mr. Bodley on the grounds that the increased traffic would endanger the Minster, a danger which was only avoided by a public-spirited citizen coming forward with the necessary money. At Conway it was proposed to "restore" the Queen's tower of the Castle. Of Richmond and the lovely view from its Hill we have had months of controversy because certain speculators wanted to put up their rows of hideous little houses. And in London there have been a score of important subjects for complaint or dispute during the year—the Council's fiasco of a competition in connection with the new street (the assessors' report published last June after having been kept back for a year and a half!); the Piccadilly widening; Christ's Hospital; the proposed County Hall involving the unnecessary demolition of the work of the brothers Adam; and, last, the new Vauxhall Bridge scandal. All these have been matters of dispute; and doubtless there is an equal number in store for us during the next twelve months.



UPTON COURT, HEREFORDSHIRE.

But leaving these subjects of controversy, let us just note some of the important buildings that have been begun or finished during the past year. Eminently first, the splendid fabric of Westminster Cathedral has been completed, that red monument of genius which we may pride ourselves on possessing—the finest cathedral of modern times. Then at Truro another fine cathedral has been proceeded with, though there was anxiety about the cracked bases of the piers, caused by the extremely-fine ground and scientifically-mixed mortar making the piers practically monoliths "with the attendant risk of undistributed pressure all coming on a single bed, and that under the plinth." At Horsham the new Bluecoat Schools were completed from the designs of Messrs. Aston Webb and E. Ingress Bell, and a start has been made at Birmingham with the very extensive university buildings designed by the same architects. At Colchester the new town hall was opened in May (Mr. John Belcher, A.R.A., architect). At Welbeck Abbey the rebuilding after the fire of 1900 has been going on steadily; whilst throughout the country a vast number of municipal and other buildings have been erected, and an amazing number of chapels and churches. In London many notable buildings have been erected or begun—Mr. Collcutt's "Lloyd's Registry" has been finished with all its wealth of beautiful interior decoration and costly fittings; the new Government offices in Whitehall have been commenced (what a dispute about these—revived in the House last August by Lord Balcarres discharging another diatribe at the Government, and Mr. Leonard Stokes making a final effort to get an outside architect engaged for the details); the third block of Admiralty buildings (Messrs. Leeming & Leeming, architects) has been begun; a good start has been made on the South Kensington Museum extensions; and many commercial buildings, hospitals, &c., have been completed.

From an historical standpoint the past year is of course specially noteworthy for the coronation of King Edward VII., a ceremony followed by two knighthoods as a royal recognition of architecture—Sir William Emerson and Sir Rowand Anderson; and a ceremony, too, which inspired that admirable decoration of Westminster Bridge by the students of the Royal College of Art Modelling School.

As with new buildings, so with the old. Many of the latter have had to be pulled down or repaired by reason of city improvements, while considerable work has been going on at some of our cathedrals—the reparations of York Minster and Peterborough Cathedral were completed (the latter having cost £80,000 during the eighteen years occupied in its repair); at Malmesbury Abbey the restoration has been proceeded with; at Chester Cathedral the south transept was restored as a memorial to the late Duke of Westminster; and now it is reported that the west front of Exeter Cathedral is in some danger by reason of the weight of the roof. At St. Paul's Cathedral the electric light has been installed through the generosity of Mr. Pierpont Morgan, Sir William Richmond has continued his decorations, and a fine memorial to Lord Leighton (by the late Mr. Onslow Ford) has been erected. Close by, the demolition of Christ's Hospital has been carried on, and grim Newgate, too, has been put into the house-breakers' hands, after whom have come the builders of Mr. Mountford's sessions house, the foundation-stone of which was laid just before Christmas.

Several bridges came under consideration during the year—London Bridge by reason of its widening, the effect of which is yet to be seen; Blackfriars Bridge by the revived proposal to complete its blocks with statuary, a proposal which was rejected; a suggested bridge across the Strand which would take the cross traffic over to Waterloo Bridge; the new Vauxhall Bridge, about which the London County Council has been so ignorant and pig-headed; Westminster Bridge, where the late Mr. Thornycroft's Boadicea group has been erected in bronze; and the little bridges at Sonning, on the Thames, where the picturesques old timbers will give way to a "nice lattice girder."

The question of bricklaying came in for a good deal of discussion, and the "Times" allegations of the "ca' canny" methods of trade-unions, though denied flatly, were really never refuted—simply because they were true; while Mr. Stewart at the British Westinghouse Works at Manchester showed the alarming contrast between what could be done and what is done—a contrast between 1,800 bricks a day and the trade-union 400, or the old 330 of the London County Council (the latter has reformed its Works Department and appointed a Housing Manager, with marked success).

There was the usual crop of competitions, most of which were conducted in a proper manner, though Mr. Norman Shaw's award as assessor for the Chelsea Baths was reversed and the conditions of the Leith Poorhouse and one or two other competitions were unjust.

Building accidents have been occasional during the year, as might be expected, but the Belfast Mill disaster in January, and the catastrophe at All Souls' Church, Langham Place, were specially deplorable.

Considerable attention has been given to fire-prevention (the amendment of the London Building Act following as a result of the terrible fire in Queen Victoria Street) and the reform of the by-laws in rural districts has been urged with zeal: while the protection of buildings against lightning has been studied with increased attention (the Lightning Research Committee having been formed) and professional questions of many kinds have been dealt with by the Institute, notably in regard to quantities and the standard form of building contract.

Many new editions of important books were issued, and among new publications may be mentioned Mr. Russell Sturgis's "Dictionary of Architecture and Building"; Mr. Inigo Triggs's "Formal Gardens in England and Scotland"; the reprint of the designs of Robert and James Adam by Thézard Fils; Mr. Spielmann's "British Sculpture and Sculptors of To-Day"; Mr. Mowbray Green's "Eighteenth-century Architecture of Bath"; the sixth and last part of Messrs. Belcher & Macartney's "Later Renaissance Architecture in England"; Mr. Gotch's book on the early work and Mr. Triggs's measured drawings of the same period; the selected examples of Piranesi's work; Mr. Watson's "Double Choir of Glasgow Cathedral"; Lady Dilke's "French Decoration and Furniture in the Eighteenth Century"; Messrs. Anderson's and Spiers' "Architecture of Greece and Rome"; Professor Lanciani's "New Tales of Old Rome"; the first volume of the newly-constituted British School at Rome; the Abydos volume of the Egypt Exploration Fund; Mr. Vernon-Harcourt's "Civil Engineering as applied in Construction"; Mr. Ellis's "Practical Joinery"; and Mr. Whitelaw's "Surveying."

The exhibitions at Wolverhampton and Cork were held, neither very successful from an architectural point of view, and the former an utter failure financially.

The death-roll includes the names of a few architects of some standing (Mr. W. G. Penty, of York, especially), but only one architect of eminence—but that one associated with a tragic end. Mr. Bentley, who died a few days before he was to be presented with the Royal Gold Medal, was one of the greatest of modern church architects. The loss which architecture sustained by his death may be fitly recognised by gazing on the splendid cathedral into which he built his life, a building which will stand as a great memory of a great architect.

Finally, we may briefly note that the condition of the building trade during the past twelve months has been very depressed, this being in some measure due to the South African War. But one is grateful to see that the prospects in the forthcoming year are brighter. Let us hope that architecture will similarly improve its condition—not measurably in a year, for that is impossible, but in a decade, the first of a new century which shall witness the bringing together of the uttermost parts of the earth, the strange application of new science to human needs, and the general betterment of architecture as a living and not a dead factor in civilization.

The German Municipal Exhibition will be held next year in Dresden, its object being to illustrate municipal progress. Section 1 will mainly concern street questions, section 2 will embrace building regulations and dwellings, section 3 will deal with architecture, painting and sculpture. The other sections will deal with matters quite outside the building interests.

IN THE WELSH MARCHES.—II.

By CHARLES G. HARPER.

(*Concluded from p. 307, No. 411.*)

FIELD-PATHS lead from Pembridge to Shobdon, a scattered village situated on a gentle hill and called originally by the Anglo-Saxon *sceope-dun*; literally "Sheep's Hill." It is now notable only for the neighbourhood of Shobdon Court, a red-brick and stone mansion of great size built during the eighteenth century by the Viscount Bateman of the period. The entrance to the lovely wooded park is untidy, and the great range of stables melancholy with its acres of broken windows. Everything is unkempt and dishevelled, and the Court nears the blighted appearance of a superannuated workhouse. Directly adjoining this melancholy place, whose wretchedness is the result of the extravagance and debaucheries of the Batemans of the Georgian era, is the church, rebuilt in the singular style to which that of the Pavilion at Brighton bears some resemblance. The charitable call it Byzantine. This egregious building stands on the site of the old church, pulled down for the purpose; a church, be it remarked, among the very foremost of our ancient Norman examples for interest and elaboration. It is a testimony to the high appreciation in which the three arches that are left are held when it is said that casts have been taken of them for the Architectural Court in the Crystal Palace, as representing characteristic Norman decoration at its best. These arches are set up as "picturesque ruins" in Shobdon Park, and are left to the mercy of the elements. The larger arch seems to have divided the nave from the chancel; the two smaller ones were probably doorways. All are sculptured most richly and elaborately with representations of birds and beasts and foliage in the grotesque and blood-curdling convention of the twelfth century—dragons and other mythical chimeræ, strange creeping and flying things that surely never flew or crept upon this earth or over it; hideous knights and repulsive angels are carved, together with the characteristic Norman scroll- and knot-work; and there is not a pin to choose, on the score of good or evil looks, between the angels and the demons, the dragons and the valiant knights, who cover all the available surface of these carved stones; they are all equally archaic. Yet, though the Norman was incapable of making his saints and celestial beings appreciably less horrid of aspect than the fearful fauna with which his imagination peopled the infernal regions; and though, if he had any sense of facial beauty or sweetness of expression, he could not put those graces into concrete form; we must none the less admire both the strength of his imagination and the technical excellence, the virility and the rich appearance of his stone-carving.

To the sylvan beauty of the hilly park of Shobdon succeeds a wide stretch of flat lands known at one time as Shobdon Marshes They have long since been drained. Here is Mortimer's Cross, those fatal cross-roads that gave a name to the battle of 441 years ago. The traveller sees the peaceful country stretching away on either hand, with the "Mortimer's Cross" inn and a cottage or so dotting the wayside.

Here, on the level plain through which wanders the winding course of the River Lugg, was fought on Candlemas Eve, February 2nd, 1461, the battle of Mortimer's Cross, so called from the proximity of the cross-roads, where, centuries before, the piety of the Mortimers had erected a wayside shrine. On this fatal field the contest raged until night, and not until darkness spread



NUNUPTON COURT, NEAR BRIMFIELD, HEREFORDSHIRE.

over the scene could the Yorkists claim a victory. But when that victory was won, the neighbouring villages of Kingsland, Eardisland and Shobdon were spattered with the blood of the fugitives, strangers in the very heart of the victors' feudal district. They were cut down and stabbed mercilessly to death with the pikes and bills of the peasantry, and amid this slaughter the Crown of England passed from the Lancastrians to the Yorkists, whose head, the young Edward Mortimer Earl of March, became Edward IV.

Past Croft Castle the road goes to Orleton, one of the loveliest villages in the Marches, whose natural scenery and old cottages are alike beautiful. Within a circle of five miles from here is a very wealth of delightful cottage and old manor-house architecture. Luston is a fine sketching-ground; Upton Court, now a farmhouse, one of the most perfect magpie-houses in the shires; and Nunupton Court, near Brimfield, a curious study in late fifteenth-century timberwork, with a seventeenth-century brick wing, adorned with some picturesquely designed chimney-stacks.

If we retrace our steps a little way to Kingsland, we shall find there a thirteenth-century church with a unique Easter Sepulchre in the porch (illustrated on p. 326). Near by is the smaller village of Eardisland, with a very sketchable old half-timbered vicarage almost buried behind a phenomenally ancient yew hedge, carved fantastically into the semblance of arboreal peacocks and round cheeses. Also, there is an ancient manorial pigeon-house beside the bridge that spans the River Arrow. The town of Leominster is four miles distant, and convenient as a centre, although it cannot, I fear, be termed on the whole an interesting town. It has, it is true, an ancient Priory Church, of Norman and subsequent periods, and in the Grange, outside the town, you have the finest of John Abel's town halls now turned into a private residence, having been sold by the brutish town councillors in 1853 for £95; for the rest, Leominster ("Lemster," they call it locally) streets are of the severe red-bricked Georgian type, with brass-knockers on the doors, and wooden porticos that look as though they had been stunted in their growth: an example of what scientific pundits term "arrested development." But no more of Leominster; that way lies exasperation.

THE LAW AND THE ARCHITECT.*

By W. JOHNSON-ROBERTS.

EVERY architect has a more or less accurate idea of what a "contract" is. It is, roughly speaking, an agreement between two or more parties to do or to refrain from doing a certain thing. Contracts may be divided into many classes, but it will suffice for my present purpose to divide them into four great divisions, *i.e.*, oral, written, express, implied.

An oral contract, as its name implies, is one made "by word of mouth" orally; a written contract is one reduced to writing. An implied contract is one implied or deduced from the circumstances of the case, the document embodying the contract or otherwise. An express contract is one the terms of which are, at the time of making it, defined in writing or openly uttered and avowed.

It may be well at this stage to give an example of each. I say, "I will sell you my watch for £5"; you say, "I'll take it." These words constitute a complete and binding oral contract. If these words be written and signed by both of us, a written contract is produced, which, however, from a legal point of view, is no more binding or efficacious than its oral prototype. Evidentially it is better, no doubt; because (put in legal phraseology) *litera scripta manet*; the written word (or writing) remains. It cannot change or alter.

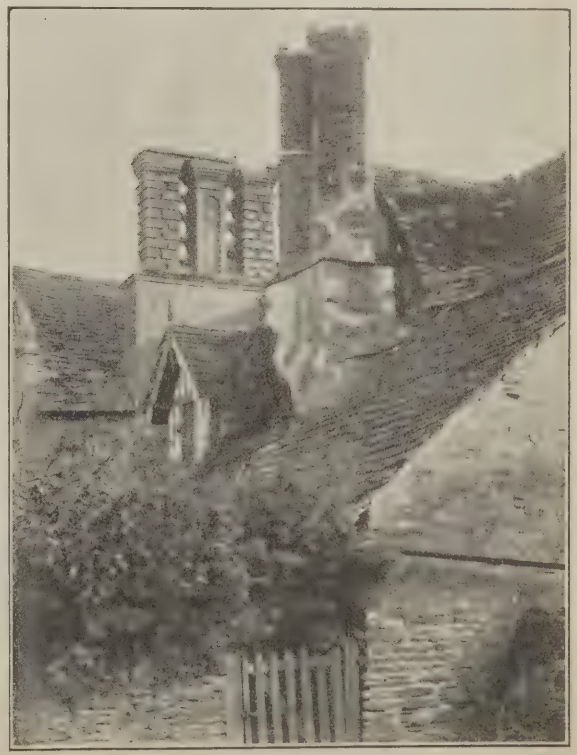
Now, either of these contracts—written or oral—may contain other implied contracts

An implied contract, as has been stated, is one which is not apparent on the face of the written agreement or was not spoken of when the oral contract was made, but is one which reason and justice dictate and which the law, therefore, presumes that every man undertakes to perform. It has, as the case may be, to be deduced from the writing, the intention of the parties, the circumstances of the case, or any or all of these things. We cannot have a better example of an express contract than the contract, be it oral or written, between you and me—I to sell and you to buy the watch. This may also be a very good example of an implied contract if you suppose in addition that I am a watchmaker and you are my customer. You come to me and buy a £5 watch, and I sell it to you. This implies a contract on your part to pay me the £5 and on my part that the watch I sell you will perform its part, that is, keep fair time according to its class and price.

There is yet another division of contract of such great importance that we cannot afford to ignore it—I refer to the division of written contracts into the two great classes of contracts under seal, or deeds, and contracts not under seal, or simple contracts, which latter may be either verbal or written, or constituted partly by writing and partly by word of mouth, or by the conduct of the parties. The distinction between these two classes of contracts is of vast importance, and dates back to a very early period in our history. I do not intend to dwell on this portion of the subject further than to say that contracts under seal are called specialty contracts, and contracts not under seal, whether in writing or not, are called simple contracts; and that the law has always regarded contracts under seal as much more solemn and important than simple contracts. We all know that in the Middle Ages learning, especially writing and reading, was the privilege of the few, these few being almost exclusively the priestly classes.

Such being the state of public education, you can see how impossible it was for the vast majority of the people either to read or even sign their name. Therefore some other means of testifying their consent to a document in a permanent way had to be arrived at. The seal supplied the want.

Nowadays we look upon the sealing of a document as a trivial and unimportant



NUNUPTON COURT.

* A paper read before the Architectural Association of Ireland on December 2nd, 1902.



ORLETON, HEREFORDSHIRE.

formality. Let me tell you, however, that it is more important than the signing. A man can by sealing a deed of conveyance and delivering it over to the party in whose favour it is drawn as effectually vest the property in him as if he had signed it in half a dozen places and in the presence of as many witnesses.

We must now see how all this affects the architect.

When a Retainer should be in writing and when sealed.

We should consider what contracts should be under seal and what should be in writing, and what contracts and provisions the law implies. To do so we had best begin at the beginning and consider his relations with his employer, the contractor, the quantity surveyor, and the various other parties with whom he comes in contact in the practice of his profession. I shall now consider how the relationship of employer and employed arises, and to what powers it gives birth. To create this relationship a retainer of some sort is necessary.

Although a written retainer is not usually necessary when an architect is employed by an individual, yet it is always advisable, and wherever possible should be obtained.

There are, however, some occasions on which it is absolutely necessary:—

(*a*) Where one is acting for a corporation, which expression, I may say, includes not only such bodies as our city fathers, but also railway companies, limited liability companies, &c. An agreement with one of these appointing an architect must not alone be in writing but must be under the seal of the corporation. As a general rule these bodies have no power to contract otherwise. A mere resolution of a committee, or instructions from a mayor, even though he be a lord mayor, will not enable the unhappy architect to recover his fees, if they refuse to pay, unless his retainer is under seal. The same applies to a doctor or solicitor—who are regarded as corporate officers. In the case of small contracts with contractors, and contracts made in the course of the business for the carrying on of which the company or corporation exists, the law is not so exacting. Certain corporations have in regard to certain contracts power to dispense with the sealing, while others have not. Some can only contract by seal affixed in the presence of possibly half a dozen officials; others only need one—the secretary. Non-compliance with any of the formalities, whatever they may be, would render the transactions invalid and the expenses incurred in connection with them irrecoverable. Of course, if the contract of retainer between the corporation and the architect is invalid, the contract between him or by him as agent for the corporation with the contractor would also be invalid. Wherever it is necessary to have the retainer or original contract under seal, it is also necessary to have all orders for extras approved of under seal, unless the original contract contains a power enabling the architect to order extras. [*Ranger* v. *Great Western Railway Co.* (1854), 5 H.L.C. 72.]

Again, even though the contract has been properly sealed by the corporation, it may be invalid owing to its being made *ultra vires*, that is, beyond their powers. For example, a company is formed, and its memorandum of association (which is practically its charter) states it has been formed for the manufacture of soap. A contract with that company to build, say, a woollen mill for the purpose of carrying on that trade would be *ultra vires*, and the expenses incurred would be irrecoverable against the company. The individual members of it, however, who signed the contract and got the unfortunate architect and contractor into the fix would, I am glad to say, be personally responsible; but this, I fear, in many cases would be but a poor consolation. A precept of perfection in such cases is—consult your lawyer.

(*b*) Where that ancient Act of Parliament called by the invidious title of the Statute of Frauds applies. This Act, which was passed so long ago as the twenty-ninth year of the reign of King Charles II., makes a written agreement necessary in cases where the work to be done is not to be completed within one year from the date of the retainer. Where such is the case, the agreement or retainer must be in writing and be signed by the party to be charged therewith, or his agent. The statute does not apply where one of the parties can complete his work within the period, as where an architect is to get a lump sum for certain plans—so long as the plans were finished before the year it did not matter how long the building took; or, again, where an architect was to be paid a certain sum before starting work which was to be in full discharge for the work, it did not matter how long the work took, so long as the contract was capable of being completed by one of the parties within the year.

Speaking of retainers, I need hardly point out that all Government appointments are only during his Majesty's pleasure.

However, in certain cases, where the architect is employed by the head of a department entrusted by statute with the carrying out of some Government work, the latter can be sued like a private individual, and the architect has the same rights against him.

Bills of Quantities and the Architect's Liability.

I shall now consider bills of quantities so far as the architect is liable in respect of them. Of course, if the quantity surveyor is directly appointed by the employer or the contractor, the architect has nothing to say in the matter. However, as is almost invariably the case here, the quantity surveyor is appointed by the architect. It is generally thought that his appointment as architect enables him to do so with safety. But such is not always the case. It has been decided that where an architect was instructed to make plans, though with no instruction to obtain estimates or tenders, if he employed a quantity surveyor he did so on his own responsibility. Even in those cases where he was directed to obtain tenders it would seem that a certain amount of doubt exists. The trend of the decisions, however, points that in such last mentioned cases he *has* the power.

To make assurance doubly sure, you should always have a clause empowering you to make the appointment inserted in the contract between you and your employer. That is in your retainer. Another important fact is that even though the architect has by special custom power to appoint a quantity surveyor to take out the quantities, yet that gives him no authority to appoint one to measure up the additions or omissions. Of course, where the architect exceeds his authority and appoints a quantity surveyor where he should not have done so, he is liable to be made to pay him himself.

When the Architect is a Skilled Servant and when an Agent.

The architect occupies two different positions in the eye of the law with respect to his employer at different times in his employment. When drawing and preparing the plans he acts simply as the skilled servant of the person who employs him. When superintending and assisting in carrying them out he acts as agent for his employer. This is a most important distinction.

For example, A employs an architect to make plans for a building for him, to get estimates, and to see that the work is done properly. The tenders arrive in due course, and one for, say, £10,000 is duly accepted. A tells his architect during the progress of the work that certain alterations or omissions have to be made, or perhaps the architect orders them without consulting A. Now, A is liable for the additional cost of these alterations, even though they were done without his knowledge, possibly against his will, and in face even of a direct agreement between himself and the architect that the cost of the work should not exceed £10,000. The reason of this is that the architect is acting within the scope of his agency, and the contractor has no knowledge of any limitation thereof. The only way A can protect himself is by giving the contractor notice of the limitation he has placed on his agent's (the architect's) authority. [1 Y. and J. 37 (1826).]

In the well-known case of *Rex* v. *Peto* an architect's duties in regard to the carrying out of his plans has been well set out:—"A person who ought to be in the general but an overlooker of the owner to see that the work is accurately performed." Now it frequently happens that while a building is in course of erection the architect sees that some alteration, more or less extensive, would considerably improve his design. He causes this alteration (or omission) to be made It seems perfectly certain that without the express consent of the employer he has no authority whatever to materially alter the contract work as laid down in the drawings and specifications. If he does so, however, and exceeds his authority this will not render invalid any contract he may have entered into, as against the other contracting party, who if he has acted *bona fide* and without notice can recover against the employer, who can in turn recover against the architect.

In *Cooper* v. *Langdon* an architect ordered a deviation from a brick wall to a stone wall without the express authority of the employer. The contractor carried out the alteration, but could not recover the cost against the employer. I am aware that in most contracts the architect has power to make additions and omissions. Notwithstanding this, his power is limited. This view is supported in *Rex* v. *Peto*, where even in the face of a power authorising additions and omissions an architect was held to have no power to order deviations or variations.

Again, in an Irish case, which some of you may remember—*Herron* v. *Rathmines and Rathgar Improvement Commissioners (1892)*—it was held that such a power did not enable an architect to dispense with a considerable portion of the works. This case went to the House of Lords. In it Lord Macnaghten said, "If you move inwards one of the lines or sides of a prescribed work, so as to efface or cut off a substantial part of the design, you are not deviating, you are simply mutilating the work."

I may mention here that it is very inadvisable to annex the quantities to or make them a part of the contract, as in that case the court may hold that the contract on the builder's part was not to complete the works but merely to execute the quantities as set out in the schedule of quantities annexed to the contract.

Certificates.

I shall now say a few words regarding his liability of the architect to the contractor and to his employer in respect of certificates and otherwise.

The architect is usually the person appointed in the contract on whose certificate the contractor is paid. If the former refuses to give it he is frequently sued by the contractor on the ground that he is insufficiently paid, that the amount certified for is inaccurate, and that the architect has been careless or shown want of skill in its preparation. This is not sufficient. Unless the contractor proves fraud or collusion he cannot recover. The architect is only bound to give an honest decision according to his lights [*Stevenson* v. *Watson*: 4 C.B.D. 148 (1879)]. Even undue delay in certifying, unless it be coupled with fraud, will not enable the contractor to recover against the architect, neither would inaccuracy in or non-feasibility of the plans, specification or bills of quantities supplied to the contractor by the architect warrant the former in bringing an action against the latter.

The whole question of liability as between the architect, his employer, the quantity surveyor, and the contractor is one of agency. Anything an architect does within the limits of his agency and in good faith will be sustained. Any act *ultra vires* or tinged with fraud causes him to be personally liable. If he orders materials or directs new work, he is acting beyond his authority and thus incurs personal liability.

Now, some defences which the architect could very properly make against any action by the contractor would be bad as against the employer, because he occupies a different position towards the latter. As between the architect and his employer, the former is bound to exercise reasonable skill and care in the discharge of his duties, and is consequently liable for negligence. He is also liable for ignorance, want of skill or neglect, mistakes in design, the employment of improper materials in the works by neglect of proper supervision, or by giving unsound advice on professional matters. In such cases an architect who loses his fees only has much to congratulate himself upon. Happily such cases are rare.

Although, as I have told you, the architect is not liable to the contractor for negligence or delay in the preparation of his certificate, yet such is not the case as between the architect and his employer. The giving of the certificate by the architect is usually a condition precedent to the payment of the contractor by the employer. This, however, is purely a matter of arrangement, and depends entirely upon the terms set out in the contract and conditions. In the absence of a special condition requiring a certificate of approval from the architect or the contractor, the latter would by common law be entitled



HALF-TIMBERED COTTAGES AT ORLETON, HEREFORDSHIRE.



OLD COTTAGE NEAR LUSTON, LEOMINSTER.

to payment on completing the work with good material and labour and to the best of his ability. He is not bound to satisfy either the architect or the employer. He has, subject as before, merely to do the work in such a way as would satisfy a reasonable man.

A certificate need not be in writing unless the contract so provides. A verbal approval would in that case be sufficient.

In granting the certificate the architect is not acting in a judicial capacity, but simply as a professional man, and as such is responsible to his employer for his own negligence or that of any assistant whom he employs in its preparation. Both the contractor and the employer are bound by the final certificate, and the latter must pay the amount certified, excepting in cases of collusion or fraud. He must pay, even though the work is not executed in the way required by the contract or work is done that was not ordered. Where the contract declares the architect to be the proper person to certify for the works and extras, and adds that his decision is to be final between the parties, it is so.

Goodyear v. *Mayor of Weymouth.*—In this case a contractor sued for work done under the contract and extras. The architect's contract contained a clause similar to what I have just mentioned. His final certificate was held to be sufficient to debar the defendants from raising the question as to whether there was any order in writing for the extras, the judge observing: "If you employ an architect who does not know his business, and who certifies that he is satisfied when he ought not to express satisfaction, you must be bound by his mistake."

If for any reason an architect feels that he is not justified in issuing his final certificate he should give the contractor his reasons for this, so that the latter may have an opportunity of remedying defective workmanship or materials, and thus become entitled to the certificate. If the architect, acting in collusion with the contractor improperly grants a certificate it can of course be set aside, as fraud vitiates every contract. Yet, strange as it may seem, you can so draw your conditions and contract that even fraud will not vitiate them; all that need be done is that the intention of the parties to that effect be clearly expressed. (*Tullis* v. *Jacson*, 1892, 3 Ch. 441.) In certain cases, even though the granting of a final certificate is made a condition precedent to the payment of the contractor, yet the latter is relieved from this condition. The cases in which this arises are chiefly where there is fraud and collusion between the employer and the architect; where the architect without due reason, and to prevent or delay payment to the contractor, refuses to certify; where the employer has to appoint an architect to certify and refuses to do so; where the architect empowered to certify cannot *by the act of the employer* obtain access to the buildings for purposes of examination, &c.; where by act of God the granting of the certificate is rendered impossible; or where the architect dies before granting the certificate, and the contract contains no provision as to appointing a successor. In any of these cases the obtaining of the certificate by the contractor is dispensed with.



EASTER SEPULCHRE, KINGSLAND CHURCH, HEREFORDSHIRE.

In the absence of fraud a final certificate is in the eye of the law practically a judgment for a liquidated amount and can be recovered by summary process.

I have now nearly finished about certificates, but before I close I must point out that great care should be exercised in the preparation of a final certificate, as an inaccurate final certificate once issued cannot afterwards be amended. The architect by giving it has exhausted his powers and become *functus officio*, and has no power to interfere further [*Jones* v. *Jones*, 17 L.J.Q.B. 170 (1848)]. A totally bad certificate, strange as it may seem, has an entirely different effect, and does not interfere with the powers of the architect to issue a new one, the reason being that as the certificate issued is bad it is in the eye of the law no certificate; the architect is therefore in the same position as if he had never issued one [*Cook* v. *Ipswich Local Board*, L.R 6 Q.B. 451 (1871)].

There is just one more point in connection with certificates to which I will allude, and that is the importance of disclosing to the contractor's sureties the fact (if such be the case) that the approval of the architect, or of the architect and some other person or persons, must be obtained before the contractor can claim payment. If this is not disclosed the sureties are discharged from all liability.

Now, you will no doubt have seen by this how very important it is that the contract between the parties should be as near perfection as skilled draughtsmanship can make it. When no lawyer is at hand, the architect must act on his own initiative. In view of such an emergency it is absolutely essential that he should have at least an elementary knowledge of the various branches of the law which are most likely to arise in the pursuit of his profession—the law of contracts (what constitutes a contract, the different kinds of contracts, what is necessary to their validity, and the proper construction of ordinary contracts); the law of easements, rights of way, light, water, support to land, &c.; a knowledge of the duties, powers and responsibility of arbitrators, the drawing of awards, submission to arbitration, &c., specific performance, negligence, damages, and their own powers and duties as architects. This may seem to you a rather big dose of law for anyone but a lawyer, but, I assure you, sufficient information for your purposes on all these points could easily be conveyed in about a dozen lectures such as I am now giving. The benefit to your clients and to yourselves would be inestimable. The lawyer would benefit by it too, as by the information you had acquired you would be able to see the limitations of your own knowledge and judge when his assistance would be useful to you. The influence of the architect with some legal knowledge would be of immense service, and could only tend towards good.

BUILDING CONSTRUCTION.—V.

[By Our Special Contributor.]

(*Continued from p. 303, No. 410.*)

[For practical details of slating see previous articles in THE BUILDERS' JOURNAL, January 8th and January 22nd, 1902.]

IRON is called galvanized iron when it is coated with zinc. Iron is prepared for galvanizing by first washing in water to which has been added 1 per cent. of sulphuric acid, and afterwards scouring with sand; it is next dipped in chloride of zinc, and then into a bath of molten zinc. The name galvanized iron is only justifiable when we understand the way in which the zinc coating protects the iron beneath it. The oxidation of any metal is the result or the occasion of electrical action. When two metals which are dissimilar touch, though the electric potential is the same within the body of the metals, owing to their good conductivity, the layer of air close to one metal is of a different potential to that close to the other metal; and if there is a liquid connection between the extremities of the pieces of metal there will be an electric current which may be maintained by *electrolytic* action. The metal which is electropositive to the other will oxidise, and the other will not oxidise and will in some cases build up and increase. For example, if we connect a piece of zinc and a piece of copper with a wire and dip the "plates"—the copper plate in a saturated solution of sulphate of copper, and the zinc plate into a porous earthenware pot containing dilute sulphate of zinc, so that the porous pot also dips in the sulphate of copper solution—the zinc will dissolve, strengthening the sulphate of zinc solution, and the copper plate will increase in weight, weakening the sulphate of copper solution. Every person having to do with metals in structures should understand this simple thing. It naturally occurs to ask why, then, will a metal rust which is apparently not in contact with a different metal? The answer is that no piece of metal is absolutely homogeneous; parts of it are electro-positive to other parts. Let the student take a piece of pure zinc and a piece of pure carbon, place them side by side in a glass of dilute sulphuric acid—there should be no appreciable action until the carbon and zinc are connected with a wire or are caused to touch, when action immediately sets up. But even if we could have pure metals it would be impossible to use them in structures without direct or indirect connection with dissimilar metals and substances. In the short list: zinc, lead, tin, iron, copper, platinum, carbon, each substance is electro-positive to all those which succeed it. Why is it that zinc, lead and tin do not oxidise more freely than iron? They, in fact, do oxidise more freely than iron, but the action is stopped because the first film of oxide covers the metal like a paint and prevents further action. Iron, on the other hand, is not protected in the same way by its brown oxide (coating iron with magnetic oxide of iron, the Barff process, is a mode of protecting iron from destructive rusting). Iron rusts unequally; it pits and eats away in spots; if the decay were uniform, the life of an exposed iron structure would be more easily calculated than it is. When iron and zinc are in contact the zinc oxidises and prevents the iron oxidising. The coating of zinc on "galvanized" goods does not remain, but it disappears with fair uniformity. It performs two functions: (*a*) it acts as a paint and protects the iron from the oxygen of the atmosphere and from moisture; and (*b*) when slight scratches are made through it to the iron, small abrasions, rubbed corners, &c., its film of oxide is not so absolutely protective as to prevent sufficient action to preserve the iron from rusting at these small bared parts. If, however, a considerable area of iron is bared relatively to the area covered with zinc in the immediate neighbourhood of the bared spots, the zinc will not protect the iron, and sheets will rust into holes like ordinary uncoated sheets. The student should compare a zinced (or galvanized) bucket with one made of ordinary tinned plate; let him scratch the bottom of the zinced bucket (a number of good rough scratches or bare a small area) and also the bottom of the tinned bucket; place some salt and water in each. He will find in the tinned bucket that the scratches will soon show as brown streaks of rust, and in the other they will not show at all or very slightly (buckets are compared here, but for the purpose of experiment the student should use a tinned vessel of less value than a bucket). Coating iron with zinc is an exceedingly valuable process, but the employment of "galvanized" iron has limitations which should be understood. Oxide of zinc is soluble in sulphuric acid, so that the zinc coating has a short life in situations where it is acted on by such acids; it is also soluble in alkaline solutions. The painting of galvanised iron in such situations is useful as protecting the oxide from these dissolving agents, but it should be remembered that if it is *absolutely* protected from oxidising it ceases to have its galvanic protective properties. A zinc surface will not "keep" oil paint unless it has been prepared for it by washing the surface with a mordant (that given in Rivington's Notes, vol. iii., p. 436, is: Soft water, 64 parts, and of chloride of copper, nitrate of copper, sal-ammoniac, hydrochloric acid, each 1 part).

Tin is also electropositive to iron. Why does the scratch on the tinplate rust? The reply to this is that oxide of tin is so insoluble, such an absolutely good coating, that the first thin film perfectly interrupts electrolytic action and the iron is then not protected. Zinc-covering is good, because it is moderately protected by its oxide, but not absolutely.

This matter may appear to be taken out of its proper place, but it is suggested by our having reached the roof of the main building. The ironwork of eaves gutters is rarely ever properly painted after it has been put up; parts of it cannot be reached by the most conscientious house-painter, and the ordinary painter as a rule only paints what can be seen from the ground. The use of galvanized eave-gutters, &c., is justifiable. In some situations a corrugated galvanized iron roof-covering is better than a slate covering. Sometimes the slated roofs of low structures get bad treatment: things are thrown upon them which break the slates, and, if there is a family, both boys and girls mount upon them, to the injury of the roofs. It is almost impossible to mend a slated roof to be as good as new. The best all-round roof-covering is no doubt good slates, and one may be disposed to judge that a galvanized roof owes its existence to motives of present economy, but this is by no means always the case. In my practice I frequently make use of corrugated galvanized roofing where I think it best.

Where hay barns are made of simple corrugated iron it is found that they "sweat" inside; there is much condensed moisture. My way of applying corrugated iron is to frame the roof; having trusses of the proper proportions and at the proper distance apart, light purlins are laid on the trusses 2ft. 6in. to 3ft. apart; the roof is now sheeted on the purlins with 1in. sheeting, the sheeting felted; the felt is well coated with hot tar and pitch, and the corrugated sheets are laid upon this. Mortar (common mortar or Portland-cement mortar) should not come into direct contact with galvanised iron.

In no matter do we moderns fail more absolutely than in neglecting to make an architectural feature of upright pipes (*spoutings*: the modern sanitary requirements have produced bundles of pipes, external soil-pipes and ventilating pipes). Upright pipes are struck on to buildings; ways are cut for them through strings and cornices, and the appearance, where it is not absolutely offensive, suggests afterthought. An ancient gargoyle might discharge a shower bath upon your head, and be, so far, inconvenient; but it was an architectural feature; it was a deliberate part of the building: the modern pipes are almost as distinct from the building as are the overhead telephone wires that enter at the corner of some window. It is exceedingly easy to criticise, and, indeed, architects and artists are particularly prone to criticise; it is so easy to find fault. The hubbub may be about the griffin, about Sir W. Richmond's mosaics, or about the Vauxhall Bridge. What is most wanted is constructive work, not destructive criticism. Talking to an artist friend some time ago, I held forth on the big whole-hearted way in which high-class sculpture is made use of on public buildings in Paris as compared with what is done in London, and I instanced the two or three images on the National Gallery. My friend replied, "They have nothing in Paris equal to Landseer's lions." We appear to mistake the structural parts of a building for decoration; our columns, &c., ought to have obvious duty to do: they may be decorated, but they themselves are not decorations. Temples, Pagan and Christian, were built for the purposes of religion; castles were built with regard to military requirements; and we take the parts of these structures and arrange them in what we imagine are ornamental forms for structures that are neither temples nor fortifications. Our street architecture is like advertisement hoardings, showing much effort and some ingenuity to direct particular attention to special businesses. Possibly this cannot be prevented, but our large Government buildings should at least produce some effect of calm in our noisy metropolis. One

wonders that there any British sculptors; they get so little encouragement by public employment. We should decorate our public buildings; we should write our history upon them as Phidias told his stories in his sculptures on the Parthenon. This is perhaps too wide a digression from the business of our plain little house: its simple down spoutings do not appear on the elevations shown, they exist however at the back: the rainwater is saved in a concrete rainwater tank for laundry purposes, because the "water-supply" is from a peaty source and it is somewhat discoloured.

There is no good argument against forming flues in walls of cement masonry for rainwater and for soil pipes and ventilating pipes; in my own practice I do it with satisfactory results. In a large boarding school recently completed I carried up through cement masonry walls heavy 4in. cast-iron spigot and socket lead-jointed pipes at suitable places to serve for these various purposes. I was careful to have these pipes perfectly straight in the whole height of the house, with complete provision for easy sponging out and cleansing if at any time it became necessary to do so. The next best thing to making an architectural feature of a structural necessity is to hide it. Another time I shall probably use smooth glazed stoneware pipes carefully jointed and well surrounded with the cement-mortar as being smoother and consequently cleaner than the cast-iron pipes which were merely coated with Dr. Angus Smith's solution.

A very important consideration in designing a house is ventilation. We cannot have too much fresh air, and the only limitation to provision for ventilation is made by the inconvenience of draughtiness and the trouble and expense of heating large volumes of fresh air to a comfortable indoor temperature. The outdoor conditions are constantly changing. An important part of the purpose of a house is to make the conditions equable; in large buildings if expense is not spared this equality of temperature and purity of air may be obtained by mechanical means manipulated by a trained staff of attendants, but in common dwelling-houses mechanical appliances and a special staff are not available. Yet for proper ventilation some manipulation is necessary. It should be of the simplest possible kind. It is obvious that in mild calm weather the windows may be opened widely, and the conditions made as nearly outdoor as possible; in rough, stormy and wet weather the windows must be closed, and strong draughts of cold air must be excluded, but the purity of the air breathed is of just as much importance at one time as another. In countries where there are longer and warmer summers than ours good air is promoted by the arrangements for coolness. The living-room of Syrians is the draughty opening, arched or otherwise, between two abutment-like rooms, and the family sleep at night lying on the flat house-top or roof. The evil effects and the discomfort of defective ventilation are not as immediately obvious as some other evils, and in this country there is great danger of the ventilation, especially in middle-class dwellings, being insufficient. The good practice is extending of keeping one's bedroom-window more or less open at night; there is not much danger of draught if the window is in the same wall as the fireplace. For the ventilation of this house special ventilating flues are constructed, and there are openings from the various rooms connecting the rooms (close to the ceilings) with these flues; these openings have louvre valves which may be opened or shut, but as a rule they are kept permanently open. There are also openings to the outer air at the heads of the windows, which may also be closed if necessary, but which, as a rule, are kept open. There is no particular virtue in the ventilating flue except that it provides a convenient means of connecting the openings on inner walls with the outer air. Owing to the shape of the roof, when wind is blowing there will, as a rule, be an upward draught, but there will also be occasional downdraughts, and there is no objection to this provided that a draught is not felt in the room. I give no particular weight to arguments in favour of bringing in fresh air at a low level; if there is a fairly free connection with the outside air at the upper part of rooms of moderate height, which are not crowded (ordinary living-rooms of a house of this kind are not crowded), which have a fireplace, and which have windows free to open or shut, the operation of diffusion is sufficient for their proper ventilation. There is good reason to object to air being introduced to country houses by openings close to the ground, because moist air is thus introduced. The objection to ventilation which is worked by a gale of wind is that it works best when it is least needed. In regard to the subject of downdraughts in chimneys during stormy weather, I have sat on a roof for hours in a gale of wind investigating this question. The downdraught occurs when there is apparent calm at the chimney-pot. While there is a breeze across the chimney-pot the flue is drawing vigorously, but the breeze occasionally ceases, and then air passes down the flue, carrying the smoke down with it. The explanation is simple. Owing to the various surfaces of roofs and walls being set at various angles, the reflected currents of air from these surfaces interfere and produce points of extra pressure; these points are continually changing about with the varying force and direction of the wind, and it is when such a point coincides with the top of a chimney-pot that there is a downdraught. The best cure for this defect is to carry up the flue to a point beyond the region of these extra pressures. Some mild cases may be cured by having two outlets for the smoke some distance apart; these outlets should be furnished with oversetting valves. It is exceedingly unlikely that both openings shall be at the same time in two points of extra pressure; in such a case both valves would shut, and the smoke would be confined in the flue; at all events, it could not issue at these points. If we suppose one valve to shut, the smoke issues by the other valve, and there is no downdraught. It is important that a flue shall be regularly "gathered" in at the fireplace opening; it should be moderate in size, proportioned to the size of the average fire. In these few remarks on the subject of ventilation I make my confession of faith. There is no desire to enter on any controversy; the expression of unbelief is not made; in this matter there should be room for toleration.

Battening, Studding and Stoothing of Outside Walls.—It would be convenient to have a single definite technical term for this work. Battening is a generic name; studding is applied to stud partitions: so that stoothing, if it were generally accepted, would be a good definite name. I have not a clear idea as to how widely the word "stoothing" is used. I know that it is used in Yorkshire. I have seen the question, "What is stoothing?" in a Building Construction examination paper—I think for the Incorporated Association of Municipal and County Engineers. Recesses were formed in the masonry of the walls where an outside wall is continued by an inside wall, as at the north-west corner of the morning-room and of the bedroom over. It has already been said that wood plugs were built in to which the stoothing can be nailed: the stoothes are, say, 2in. by 1in.; they should be spiked both to the joists above and the joists below if they are placed fairly over one another, or the bottom ends may rest on the finished flooring and stitched to it; if this be done, for the moderate height of these walls spiking to two intermediate rows of plugs is enough fastening. Care is to be taken to bring the faces of the stoothes into one plane, so that the plasterer will have no undue levelling-up with his coarse stuff. Care should be taken to put in such filling-pieces as may be necessary to interrupt communication between the air-spaces of the stoothing and the ceiling above and the floor beneath, to prevent rats or mice having highways between the roof and the ground. To prepare for stoothing, instead of the wood blocks previously described, small plugs of breeze-concrete may be put in; levelling pieces of wood may be needed to keep the stoothes out to the proper plane. Wherever a piece of wood is placed as packing, or when wedging with folding wedges or otherwise, it should be remembered that the timber will probably dry and shrink and the piece may drop out; it is advisable to drive in a nail, which will prevent it moving out of its place.

There are two little pieces of stud walls on the ground floor in the dairy and store. On the first floor there is a stud wall between the small bedroom called a dressing-room; the walls between the bathroom, linen-room and bedroom are also stud walls The bathroom and passage floors are at a lower level than that of the bedroom, consequently this wall for about 3ft. high may be said to separate the kitchen from the bathroom; this piece is formed in concrete. The bathroom and passage floors are of concrete, strengthened with light steel joists; the floors are surfaced with tiles, and the walls are also tiled for 4ft. over the floor.

The detail drawings do not show the tonguing and grooving, which is not omitted in the best work. In practical work the time of draughtsmen is economised, and an omission of this kind in the drawing is made up for by a few words in the specification; it is also advisable to mark some notice of it on the drawing. Great care should be taken, when the work is to be let by contract, to make everything as clear as possible. I acted a short time ago as one of three arbitrators to settle a dispute between a contractor and owner over a matter of this kind. The architect who designed the work was one of high repute in the profession; but the contract was a very loose one: the first-floor ceiling (next the roof) was marked roughly in common writing ink on the contractor's copy of the drawings as being 1ft. higher than as shown by scale; and to raise the walls for this amount involved considerable changes in valleys; a chimney was affected; and there was a gable with a carved-stone barge-coping. The contractor proceeded with the work to scale; he said that he did not notice the rough figure; there was no clause in the conditions (indeed, there were no proper conditions) to say that figures were to be taken in preference to scale. The contractor declared that he did not know how the figure came upon his drawing; in a letter the architect declared that he put on the figure in the contractor's presence. The contractor produced a paper of variations which he said he had received from the architect, and this change was not mentioned. We decided that both parties were to blame, and we put two-thirds of the blame on the architect and one-third on the contractor. The owner, however, was mulcted in the cost of the architect's carelessness. In this case the job was a small one, and quantities had not been taken for it by a quantity surveyor. In many cases the reprehensible practice is followed of allowing the quantity surveyor to settle the details; and a specification is loosely written after the quantities are prepared. Again, designing and working-out of important large details after a contract has been signed renders the contract a non-competitive one, and leads to huggermugger and adjustment which should be carefully avoided.

(To be continued.)

THE DIRECT-REDUCING LEVELLING STAFF.*

By G. W. HERDMAN, B.SC., A.M.I.C.E.

AN engineer probably uses a level and staff as much as any other instruments in connection with the preliminary investigations for a scheme or the setting-out of works in progress. They are used for vertical measurements as the chain or tape is used for horizontal measurements, the graduated staff taking the place of the chain, whilst the level may be compared to the arrow fixed in the ground as the chain is moved forward for a new measurement. The level merely marks a fixed level plane, and the differences between the readings on the staff when held on two points as seen through the telescope looking along that plane gives the difference of level between these two points. The comparison between two consecutive observations on the staff shows the amount of "rise" or "fall" between the two points where the staff was held, and hence if the height of one point above datum (say Ordnance datum) is known the height of all others of a series can be reduced in succession by "rise" and "fall."

The reading on the staff seen through the telescope shows the amount the point where the staff is held is below the level plane. Hence, if the height of that plane (or "collimation level") is known, the height of any other point where the staff is held can at once be reduced by subtracting that reading from the "collimation level." This method of reducing levels from collimation entails less work than the "rise" and "fall," and has the advantage of enabling one to obtain the reduced level of any particular observation without working out the reduced levels of all the previous observations. If merely the difference of level between two points is required, nothing could be simpler than to find it by the "rise and fall" method, but in almost all cases many levels are wanted, and they are wanted as reduced levels in connection with some datum. The readings, as seen on the staff, are merely steps by means of which the reduced levels are got.

The object of the direct-reducing levelling staff is to lessen the arithmetic necessary to convert the readings of observations into reduced levels, and though the readings are still merely steps towards the final result, with this staff they have the two last figures at least the same as the reduced level, so that all arithmetic to the right of the decimal point is avoided. The staff may be any number of feet in length, and may be graduated according to any pattern which the user finds convenient. It differs essentially from the ordinary levelling staff in having a shoe, which slides on the staff at the end with the maximum graduations, and which can be extended and fixed at any particular hundredth of a foot so as to lengthen the staff by the amount of that extension.

The method of using it is as follows: Having set up the level, the height of the instrument above datum, which is collimation level, is obtained as usual by adding the reading seen on the staff to the value of the bench-mark on which the staff is held. The shoe is now extended *to the amount of the decimals in the collimation level*, and, in the field book, beneath the collimation level, is written the "datum level," which is the total length of the extended staff less than the collimation level. The "datum level" consequently is a whole number without decimals. All other observations from this position of the level are now taken with the staff inverted—*i.e.*, the shoe on the ground—and the reduced level is obtained by *adding the reading to the "datum level."* The amount to which the shoe is extended only has to be altered when the collimation level is altered—*i.e.*, when the instrument's position has been altered.

The reason for extending the shoe and inverting the staff is explained thus (using capitals for the feet and small letters for the decimals): Let the length of the staff be L and the collimation level $F{\cdot}d$; then the shoe is to be extended $\cdot d$, and "datum level" is $F{\cdot}d - L{\cdot}d = F - L$, a whole number. If the staff be held zero end down on a point and the reading be $R{\cdot}r$, the reduced level of the point will be (collimation level − reading) $= F{\cdot}d - R{\cdot}r$. If the staff be held shoe end downwards the reading will be (say $A{\cdot}a$) $= L{\cdot}d - R{\cdot}r$; adding this to "datum level," which is $F - L$, the result is the reduced level $F{\cdot}d - R{\cdot}r$ as before, or $(F - L) + A{\cdot}a$.



It has not been found inconvenient in the field to have the staff at one time zero end down and at another shoe end down. It is usual to book the feet of the reading in the intermediate sight column, and the decimals in the reduced level column, though generally the reduced level feet can be written down at once by adding A to $F - L$ mentally.

* A paper read before the 1902 meeting of the British Association at Belfast.

No. 144, St. Vincent Street, Glasgow.—This building, a drawing of which is reproduced above, has now been carried out. Messrs. James Salmon & Son are the architects.

A Primitive Methodist Church at Swalwell has been erected in Napier Road. It is of bricks with stone dressings. Messrs. Shield Brothers, of Swalwell, were the builders.

The Memorial to Mr. R. D. Blackmore, the novelist, is to be erected in Exeter Cathedral by Messrs. Harry Hems & Sons. It will consist of a medallion portrait on a marble slab.

Views and Reviews.

English Interior Woodwork of the Sixteenth, Seventeenth and Eighteenth Centuries.

Few can doubt the present healthy and growing affection for the production of the Renaissance period in English architecture. If discerned by no worthier test than the output of the technical publisher, it must be apparent that there is a large public for the many volumes on Jacobean and Georgian work which have recently made their appearance. Messrs. Belcher and Macartney's book has only recently been completed; Mr. Gotch's work of almost equal size is well known, and he has recently published another book on the Early Renaissance period. In addition we have had "Some architectural works of Inigo Jones," by Messrs. Triggs and Tanner, "Formal Gardens in England and Scotland," by H. I. Triggs (dealing largely with the same period), and Mr. Hurrell's book of measured drawings of old English oak furniture and remains of architectural woodwork, &c. To these must be added the book under notice, which has been compiled by Mr. H. Tanner, junr. To a certain extent it would seem that Mr. Hurrell's work overlaps that of Mr. Tanner; but the latter covers a somewhat later period, and "the endeavour has been made to strike fresh ground as far as possible, and only to present what has been illustrated elsewhere when it is so good an example of the type to which it belongs as to make its inclusion desirable. In as many instances as possible the entire treatment of the room, with doors, fireplaces, panelling, &c," has been shown, "since the study of one complete scheme is of more value than that of several isolated instances taken from different sources," though the latter, as specimens of detail, may be better examples of particular features.

The work contains examples from the reign of Henry VIII. until the time of Wren and Grinling Gibbons. Among the earlier plates may be noted the hall screen and balusters at Charterhouse; the panelling at Merton College, Oxford; the panelling from the old palace at Bromley (with the profusion of carving on the pilasters, a foil no doubt to the severity of the panels; but restless in effect), and the curious porch at Broughton Castle. Needless to say there are many details from Haddon Hall; and the Oxford Colleges exhibit many elaborate examples for Mr. Tanner's facile pen. Hatfield is an excellent example of the lordly baronial hall and furnishes subjects for two interesting plates. An example of a quaint and interesting staircase, not very well known, is that of The Strangers' Hall, Norwich. The balusters are well-proportioned and pleasing in design, changing to a curious pattern on the upper landing, where they are square in section and have Ionic caps. The pendants between the balusters on this landing are also a curious feature of the design. Three plates are devoted to Thorpe Hall, Peterborough, one plate being given to the magnificent staircase, the other two to the beautiful panelling in the dining-room. The later plates are almost entirely occupied with the masterpieces of Wren and Grinling Gibbons. The vestry door at St. Laurence Jewry, with the exquisite swags of fruit and flowers, also the entrance doors at St. Stephen's, Walbrook, are among the greatest triumphs of Renaissance wood-carving in the kingdom. Details of the woodwork at Hampton Court Palace and several plates of staircase details, among

which may be noted the staircase at Burford Priory, contribute a useful work upon the compilation of which Mr. Tanner may be congratulated. The labour involved must have been great. Mr. Tanner has very wisely supplemented his measured work by small sketches to show the position of the example he is illustrating. The illustrations represent very clean, careful, praiseworthy draughtsmanship, and the author handles pen and pencil with equal effect. The collotype reproductions of the pencil drawings are hardly so good as they might have been; in one or two instances the lines are so faint as to be scarcely discernible. For this, however, the author cannot be blamed. Altogether a noteworthy addition to the literature on the Renaissance.

"English Interior Woodwork of the XVI, XVII and XVIII. Centuries. A series of the best and most characteristic examples of chimney-pieces, panelling, staircases, doors, screens, &c, measured and drawn, and with introductory and descriptive text." By Henry Tanner, Junr., A.R.I.B.A., London: B. T, Batsford, 94, High Holborn, W.C. Price 36s. nett.

William Morris.

Men like William Morris are always extremists—perhaps they needs be in order to enforce their claims; but this is at once their weakest and their strongest point, for it prejudices those who hold different views, just as it attracts men of the same opinion as themselves. Moreover, it is not to be expected that a reformer like Morris would be popular, or even suffered, among the majority of persons, first, because they could not understand him, and secondly, because he had a great many disagreeable things to say about them and their taste. Then, extremists are constantly expressing views which create prejudice, and all that they may afterwards say has to contend with that prejudice. When, for instance, Ruskin was asked to subscribe to an association for sandwich-men, he bluntly refused, saying he could see no good in a society which sent out men with one lie pinned on their front and another on their back—in such an instance most people would cordially agree with the answer which Ruskin got—that it was difficult to see how announcements of concerts, entertainments, &c., were necessarily all lies. Yet ordinary persons stripped of their ordinary opinions leave us nothing; while men like Ruskin and Morris, though they may say a great many bigoted, arrogant and foolish things, still possess the immortal spark of genius.

Morris devoted his life to the revival of handicraft. He hated machines which replaced it—but not all machines, for he welcomed those which relieved men of onerous or degrading labour. "If machinery had been used for minimising such labour, the utmost ingenuity would scarcely have been wasted on it; but is that the case in any way. Look round the world, and you must agree with John Stuart Mill in his doubt whether all the machinery of modern times has lightened the daily work of one labourer . . . . labour-saving machinery . . . . means machinery which saves the cost of labour, not the labour itself, which will be expended when saved on tending other machines." That was Morris's whole tenet, and he looked back with a sad heart upon the Middle Ages with the craft-guilds and their individualistic work. He was a dreamer of the resuscitation of the conditions which then prevailed, conditions under which all things were made beautiful and every workman took a delight in his work. But if Morris had been nothing more than a dreamer his influence would never have extended outside his own narrow circle. Luckily he carried some of his creed into actual practice and produced tapestries, decorative work, and multitudinous designs which put new life into dead arts and inspired a whole school of workers to revolutionize the state of handicraft.

The book now under review consists of a series of eleven essays on pattern-designing, textile fabrics, the revival of architecture, the influence of building materials on architecture, and the position of socialism in regard to the arts. Morris, as might be expected, was a lover of Gothic and Byzantine buildings and an unsympathetic student of Classic ones, while he utterly abhorred the Renaissance. These preferences are repeated in many parts of the book, and with the usual onesidedness. It seems to be a fateful rule that men shall attach themselves to one style and not allow themselves to see good in any other. It was, of course, eminently so with Ruskin. And Morris was similarly prejudiced; but on the whole he was certainly a sound advocate of more appropriate building. For London he thought brick the best material; he detested terra-cotta; and catalogued milled lead, Broseley tiles, thin Welsh blue slates ("one of the greatest curses of the age"), and corrugated iron and zinc as bad roof-coverings, and cast lead, oak shingles, plain hand-made tiles, pantiles, stone slates, Green Westmorland and grey slates, thatch, straw and reed as good roof-coverings.

At this time of day we can look back on some of his likes and dislikes with amusement, but it should never be forgotten that Morris was the first to effect several improvements for which we are now very thankful. His views are well set forth in this book, and so far as art work is concerned and purely social questions are set aside, they are such as will appeal to all who desire to see men once more with a real love for their work instead of regarding it as a mere means of existence.

"Architecture, Industry and Wealth," by William Morris. London: Longmans, Green & Co., 39, Paternoster Row. Price 6s. nett.

EXETER CATHEDRAL.

THE WEST FRONT INSECURE.

EXETER CATHEDRAL boasts the greatest length of uninterrupted roof-line in the kingdom, and, under the enormous weight of lead and other material used in it, the wall of the western end, weakened to some extent by the presence of the great west window, has for many years shown an increasing tendency to give way and allow its upper portion to lean outwards. To such an extent has this movement proceeded that serious steps have been decided upon in order to obviate the risk that now exists of irreparable damage being done to the building.

For a long time the matter has received the attention of the Cathedral Chapter and their advisers, and years ago steps were taken to arrest as far as possible the mischief which the building was doing itself. At one end tie-bars were fixed to the west front wall and at the other bolted back to the body of the structure, but though they have probably done good the greatest extent of their usefulness has been the postponement of the inevitable. The lead of the roof itself has at times broken under the expanding strain between the towers and the west front, and the irregular shapes of the new patches inserted demonstrate the varying tension to which the roof has been subjected at different heights.

The visible effect of the overhanging of the west wall is not great when viewed from the front. A side view, either from the path in the Green or from the Close near the Deanery door, renders it more apparent. But the most striking sight is to be obtained by an observer standing on the roof of the outer screen, which is immediately under the great window itself and about a third of the total height of the front. The narrow open-air path running under the window is completely overhung so that one could stand there dry with a shower of rain falling. Mr. E. H. Harbottle, F.R.I.B.A., architect to the Cathedral, has of late paid special attention to the subject and reported on it to the Chapter, with the resultthat Mr. G. F. Bodley, A.R.A., was called in, and a month or so ago he made a minute examination of the structure. His conclusion was that the wall as it stands is insecure, and upon that there is no choice left to the Chapter but to take such steps as will make the wall safe.

The portion of the west front which contains the window dates at the latest from 1369, being the work of Bishop Grandisson. The elaborately-sculptured screen which conceals the lower portion of the main wall and serves also to hide the two small buttresses with which the wall is stayed, was erected by Bishop Brantyngham, who succeeded him, and it is said the plans for this screen were left by Grandisson. Probably this part of the front will not be seriously affected by the necessary operations.

Builders' Notes.

A Serious Accident at the Sheffield Brickworks at Neepsend occurred last week, resulting in the death of one man by the fall of a piece of bind. The clay is worked in floors, and is made up of shale and stone. At the time of the accident there were four men employed filling trucks. The height from the face to the bottom was 100ft. The face dipped towards the workmen, similar to the roof of a house, and anything falling would slide down. Altogether about 700 tons fell. The width of the piece of material was about 21ft. wide and 12ft. high.

Bricks for an Asylum: Councillors Dispute.—Considerable dispute has arisen at Newport (Mon.) between Mr. T. Parry and Mr. J. Linton in regard to the bricks for the new asylum which is to be erected outside the town. There appeared to be certain allegations that in view of the need for eight million bricks for the building the local brickmakers formed a ring and put up the prices, and, further, that one of the two gentlemen named was allowed to send in a revised tender under conditions which were unfair to other contractors. A special meeting of the Town Council was recently held, when the following resolution was (after much discussion) passed: "That the letters placed before the Council do not contain sufficient evidence to show that the price of bricks was specially raised in connection with the asylum contract; but that if the price of bricks were so raised, inasmuch as it was again reduced on the second tendering, it is the opinion of this Council that the ratepayers have not been injured in respect thereof."

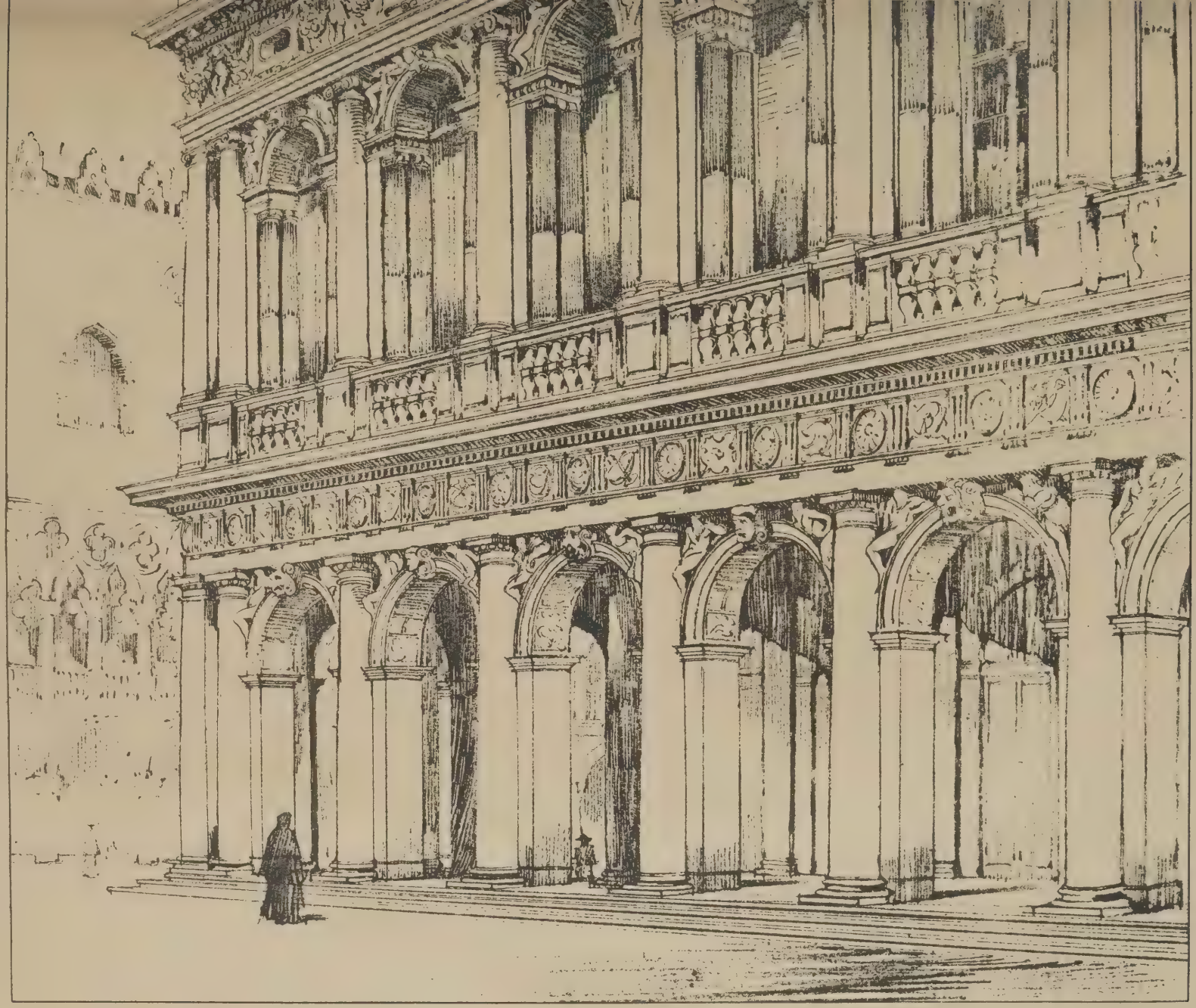
Mr. Stewart's Methods at the Midland Hotel, Manchester.—Mr. J. C. Stewart, the American contractor who, with British labour only, caused considerable talk last Spring by the rapidity with which the work in connection with the building of the huge Westinghouse Works at Manchester was carried out, has been doing similar quick work on the new hotel at Manchester. The work has been carried out entirely by British contractors and British labour. Mr. Stewart undertook to have the hotel, which is to be the largest in the kingdom outside London, roofed in by May, 1903, but already the greater portion of the roof is in position, and the whole of the vast building will be entirely closed in and the scaffolding removed by January 1st. Before Mr. Stewart assumed direction of the works it was thought that this new Midland Hotel could not be got ready for occupancy under two years (possibly three), but next summer is the date now fixed. It is said that Mr. Stewart has been asked to pull down St. James's Hall, London, and erect on its site the much talked-of new hotel.

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Supplement to
THE BUILDERS' JOURNAL AND ARCHITECTURAL RECORD,
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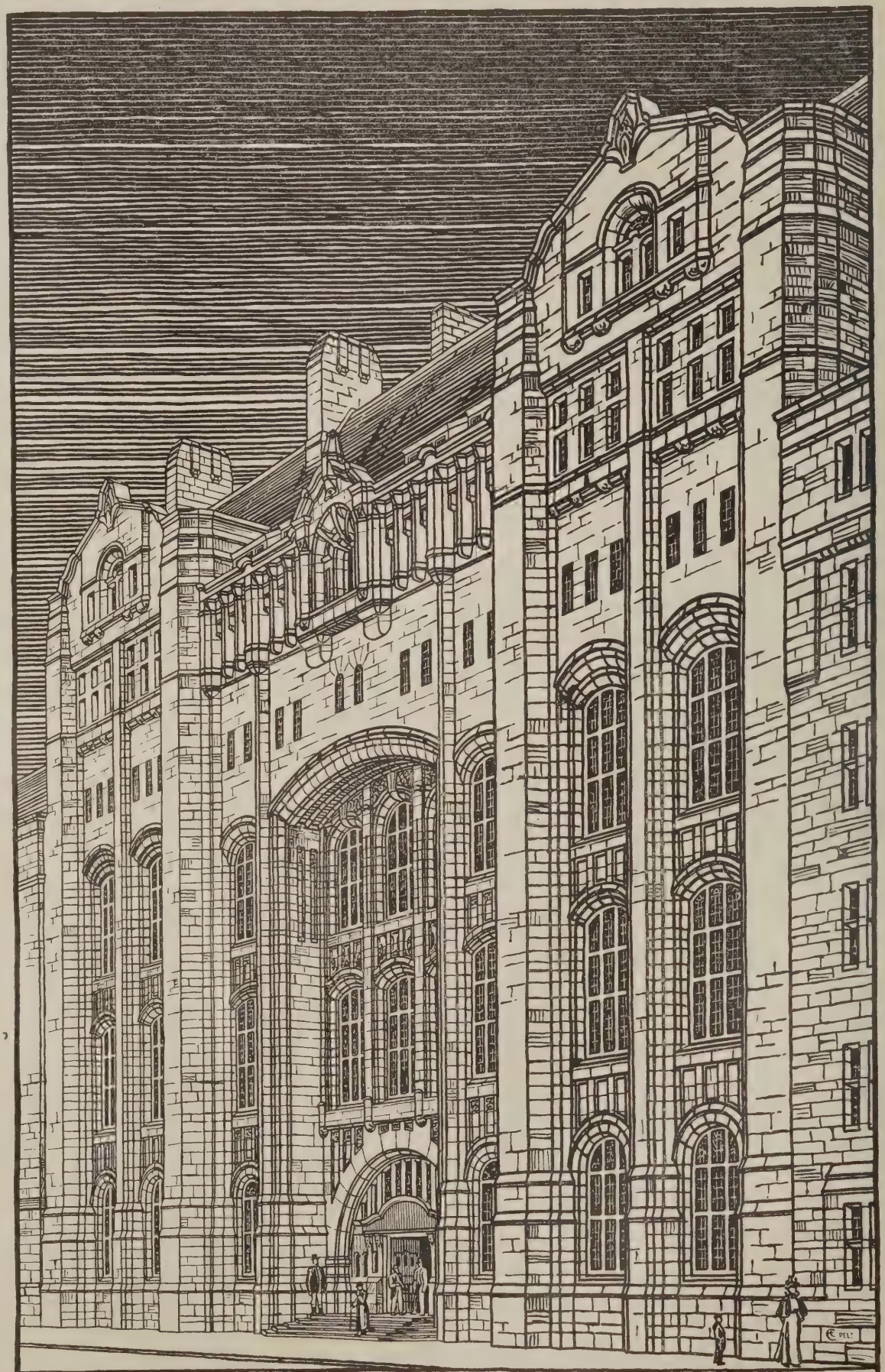


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DESIGN FOR A TOWN CLUB HOUSE. ALFRED E. CORBETT A.R.I.B.A. ARCHITECT.

Supplement to
THE BUILDERS' JOURNAL AND ARCHITECTURAL RECORD,
Wednesday, December 31st, 1902.

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THE DUTIES OF A CLERK OF WORKS.*

By WILLIAM U. MUIR.

ABOUT twenty-five years ago the question was asked in one of the building papers, Is there any published work which defines the duties of or gives instructions for clerks of works? The editor replied, "We do not remember any work defining the duties of a clerk of works; but they would be the personal superintendence of all work under the architect's directions, setting-out work, and checking the materials brought upon the ground." This led to the publication in the same year (1876) of a little volume by Mr. George Gordon Hoskins, F.R.I.B.A., directly bearing on the subject. This volume attained a fifth edition in 1893, and I propose to give some extracts from that edition to show what the author had then to say on the origin and office of the clerk of works. This little book is pretty well up to date so far as it goes, and will repay more than one perusal by those who fill the office, or aspire to fill the office, of the clerk of works.

"The earliest instance of the term 'clerk of the works' occurs in 1241 for certain work to be done at Windsor Castle; later it appears in connection with the palaces at Westminster and elsewhere, and such an appointment was held in 1346 by William of Wykeham and in 1389 by Geoffrey Chaucer.

"The household of the monarch comprised an office for carrying out works of the Royal palaces, and the earliest list yet found is of the reign of Edward IV. (1461-83); in it the clerk of the works is placed first, has a fee of 2s. per day or £36 10s. per annum; a clerk at sixpence per day, four shilling per day for riding expenses, and twenty pence per day for boat hire. Similar lists occur later; in one, 1610, containing the household of Prince Henry, Inigo Jones is 'surveyor of works', Mr. Smith 'paymaster and overseer' and Edward Carter 'clerk of the works.'"

It may seem in these remarks which I am quoting that too much importance is being given to the office of clerk of works, but they are nevertheless of a little interest, and show to some extent how this office has had its origin in connection with the more important buildings of the past.

Mr. Hoskins goes on to say:—"To judge then from these few early records we should be inclined to think that the engagement of a clerk of works was of rare occurrence in those days, and then only in the case of undertakings of magnitude or when of a residential character, or on some estates of the wealthier nobles, while in the present day, owing to the vast and increasing wealth of the country, and the close and fierce competition in the building trades and manufactures with a pernicious system of subcontracts and operative taskwork, the services of the clerk of works have become as great a necessity in the case of a £2,000 contract as in that of the greatest undertaking."

To-day the necessity for the clerk of works is, therefore, obviously greater than ever it was in the past, and the appointments are also more numerous. What, then, are the qualifications and duties of the clerk of works?

The clerk of works is a person of sound practical experience in building construction and the setting-out of all work, having an intelligent understanding of plans, especially details, and specifications, and a knowledge of all the different materials and the various qualities of those materials used and manufactured for and in connection with building operations. He should never consider himself the architect, but as employed by the architect, generally paid by the client direct, as may be agreed upon.

He is sometimes paid a fixed salary by a firm of architects, who keep him fully employed, and who allocate his salary among the different clients whose buildings he is superintending, plus his expenses incurred on each building. The clerk of works gives at the end of each month a statement of the time and expenses spent on each building during the month. A certificate for the amount is given by the architect—generally when the contract is finished if it is a small contract; but if an extensive contract lasting for a considerable period, certificates for payment of instalments are given during the progress of the works, and the final instalment at some time after the completion of the contract.

It will be quite as appropriate to mention at this part of the paper as at any other that all persons competent to give an opinion are agreed that the salary of the clerk of works should be such as to place him above any temptations which are likely to decoy him from a strict adherence to his duties. A clerk of works should be of known integrity, intelligent and vigilant, trustworthy and confidential, possessing a knowledge of the ways and habits of workmen, and capable of dealing discreetly with tradesmen and contractors. A fair knowledge of drawing and sketching is required to be able, when necessary, to explain the plans and specifications to the contractor or his workman, or, as often occurs, to give information how to deal with alterations or additions as required by clients during the progress of the works, and which necessitate immediate decision.

It is particularly to be noted that, while the client may pay the salary of the clerk of works, no instructions from him should be acted upon that are likely to come into conflict with the architect's plans or intentions; and while it is the clerk of works' duty to receive from the client any instructions he may desire to communicate, and also give all information asked for, it is seldom (and the more seldom the better) that he should take upon himself the responsibility of carrying out such instructions without first consulting with and obtaining the consent of the architect, either verbally or by letter.

In short, the architect being responsible for the finished results of the building, it is very unfair to saddle him with the consequences of the obstinate and incompetent whims of clients, who will, if displeased afterwards with the results of their own meddling, be the first to turn round and blame anyone but themselves.

If the client is a competent person, and his instructions are quite correct, there is still no reason why the architect should not at once be made aware of his client's wishes, and thus give the clerk of works full authority at once to carry them out.

While it is imperative that the clerk of works should be able to direct the procedure of and management of the various works in all the stages of progress with intelligence, he should none the less leave the duties of the contractors to themselves, and also the duties of the overseers or foremen of each class of tradesmen to themselves, making it a rule to have as little as possible to say to the workmen, while vigilantly careful to see that each man in his place is doing his part efficiently and to the interest of the client, within the meaning and spirit of the specification and the terms of the contract. On no account is it advisable for the clerk of works to give measurements, or to order for the contractors any material or articles required by them; for, should any mistake occur, he will have put himself in the position of a contractor, and the contractor may take his position very easily, if he chose to, thereby making his office a most untenable one.

If the contractors can free themselves or their merchants from any mistakes that arise, and put responsibilities at the door of the architect or the clerk of works, they are too often found rather eager to avail themselves of the opportunity. If the clerk of works gives no such opportunities, it is not consistent to think that he will be less respected by all with whom he deals. Certainly, if he acts up to his duties, he will in the end neither lose the respect of the architect nor his client nor that of the contractor and his men, if these are at all fair-minded, and he will also have the consciousness of having done his duty.

A very important item in his duties is the regular reporting he is called to render to the architect during the progress of the works. Report-forms are filled in, usually once a week, giving the various tradesmen, apprentices and labourers, with the numbers of each employed during the week, the number of days, and the hours each day; also a note of the extra hours which any of them may have worked or the number of hours off, and the state of the weather each day of the week. A short account of the various works proceeding during the week, and a short statement of the progress made and the state of the works at the week-end, are also given. These reports are all numbered consecutively and kept together for each building, and form a running history of the works from start to finish.

The number and description of the drawings received during the week and the drawings required by each class of tradesmen are stated, and the dates given when they or any letters are received during each week. A statement of all extra work done over the contract (which is useful to inform the architect if the cost of the building is being added to, and to what extent) is reported as often as possible. The architect thus has a chance to see where he can modify expenses in some other way as the work progresses, if he is so minded, and avoid excessive expense to his client, who may be averse to extras of any kind if they mean extra cost. The duty of the clerk of works in assisting the architect in this way makes it easier to avoid friction, more or less, at the squaring of accounts.

A knowledge of the current prices of materials will be very helpful and useful on many occasions, but the constant fluctuations in prices and considerations as to freightage make it rather difficult to keep abreast of them, and many of the methods adopted are not quite satisfactory.

It frequently happens that the clerk of works requires to take levels and surveys of sufficient accuracy to enable the architect to prepare plans of proposed buildings or proposed alterations of and additions to buildings, and afterwards to plot these from the surveys taken. Also he has very often to inspect and report upon and at times measure the existing buildings on which alterations and additions are proposed to be carried out. It will thus be apparent that he requires a fair knowledge of surveying and measuring, a keen eye to discover and observe decay and constructive defects, as well as the excellences or good points in a building.

He must have a very correct knowledge of the various subsoils and strata on which buildings are erected, and the kind of foundation-courses required to suit each, taking always into consideration the structure to be erected.

Sanitation should be properly understood in all its details, and not merely in all its most important points.

The necessary knowledge required to discern the common defects in all building materials never can be known too well; indeed, a clerk of works should always be adding to his knowledge of such matters.

* A paper read before the Glasgow Architectural Association on November 4th, 1902.

The part of inspector is one of the most important duties devolving upon the clerk of works, and one which he cannot afford at any time to be remiss with.

During the progress of the works careful notes should be taken by him of all extras and all work that cannot afterwards be got at, also notes of any circumstance that is in the least likely to call for explanations. Indeed, he will never err through excess of notes, but will very often, if careless in this matter, find himself in a very tight corner when explanations are required of him.

The working day of a clerk of works is not that of the operatives. If he has five or six different buildings to supervise, and all going up at the same time, besides the numerous other little tasks given him to do, his duties are not attended to in a nine-hours' day of a fifty-one hours' week. To anyone who may wish to become a clerk of works it may fairly be said, Give up any idea of a life of ease and luxury. But to anyone not afraid of responsibilities and earnest work, and to anyone who will apply himself to duties not always attractive or even remunerative, there is a field open of variety and experience which will often be found interesting, instructive and at times encouraging.

As in most cases it is the duty of the clerk of works to check all the accounts after they are made out ready for presenting to the client for payment, it will be found that the previous remarks on the taking of numerous notes will, if attended to, serve him well when the time comes for the examination of these often very-many-itemed accounts, which are the result of the after-measurement system so generally adopted in Glasgow.

I will now give a few hints bearing on the practical knowledge required to supervise the different trades with success.

In Scotland the masons, hewers and builders, otherwise known as stonecutters and stone-setters, come first, because in a country where the buildings are mostly built of stone the mason is generally the first contractor operating on the site, and he is also generally the one whose contract amounts to the largest sum. During the progress of his work it will be necessary to carefully observe the digging operations—that they are properly limited, what is the nature and the condition of the subsoil as revealed by the digger-work, especially where trenching for the foundations is being done, and whether it will be suitable for the foundation-courses specified. All likely causes of failure in foundations must be carefully noted, as a good foundation is a first and most essential consideration in successful building. Having noted all these, the nature of the first or foundation courses of the building laid will be in keeping with the requirements which experience has taught to be necessary. The manner in which these courses are laid must be very carefully attended to; for quality of material here is no more important than the method of workmanship adopted.

Drainage is another of the mason's items of contract, and the soundness of the pipes, the solidity or firmness of the bed they are laid on, and the regularity of the fall given to the drains, the perfection of the joints, the shape of the bends and branches, position of the inspection eyes, traps, air-inlets and outlets, &c.—all require special attention when put down, because, being afterwards for the most part covered up, defects are both troublesome to correct and difficult to discover. These should all be well tested before being covered up, and at least once afterwards when the building is finished and before being occupied. The joints inside should be all smooth and the filling-in of the drain trenches carefully done, so that the pipes may rest solid and undisturbed in their position, no matter at what depth they are laid or what weights may pass over them. They should always be deep enough to be beyond the effects of frost, and always laid so that they can be cleaned out if choked without it being necessary to lift them. Wherever it is possible to arrange means to flush drains occasionally, it is advisable to do so.

There are points to observe in the building of stone walls, which in Scotland usually form the main walls of a building while the partitions are generally of brick. Many of these points are common to both stone and brick walls, such as founds, underpinning, bond, quality of material used, lime, sand, grouting, regularity in carrying up the walls, correct plumbing and levelling, &c. With regard to facework, that of stone building is more varied than in brickwork, and a knowledge of the various kinds of facework and the best and most picturesque arrangement of the joints in each class is an interesting and profitable study, and one in which much good taste can be shown. It is often necessary for the clerk of works to exercise his authority in all these matters; and if his knowledge is imperfect and his taste not very well developed, provided the builder is a man of a careless or coarse turn of mind, the result will, in all probability, be discreditable to all concerned and a positive disgust to the architect.

The stonecutter's or hewer's work also requires careful attention, especially the moulded work, lest the details be departed from or otherwise not produced exactly as intended, while each stone should be carefully examined before it is set, as tinkering may have been resorted to on unsound stones to hide or lessen their defects.

Next to the builder's, under which has been embraced the mason's and bricklayer's work, comes the carpenter's and joiner's work. Some things to be noted in this are the quality of the timber, the scantlings, the safety of joists from catching fire from the flues, the proper means to adopt to guard against dry or wet rots, whether the wood has been properly seasoned and kept, and when put in is in every sense sound. A very important point is to know the proper time when the joiner's work should be brought into a new building and fixed, but although this may be perfectly well understood by the clerk of works, too often the impatience of either the architect or the client to get the work finished as soon as some other work, or for other reasons, little or no consideration is given to this matter. Carpenters are not always too particular to build their partitions, support their joists or build their roofs, &c., with a view to substantial construction or correct lines, but only with a view to economy of wood, nails, paint, labour or time. These are, therefore, points to which the clerk of works should give very particular attention, for in the joiner-work or finishings he has the architect's assistance more directly, when that gentleman visits the building, than it is possible to receive for the hidden and often less accessible timberwork. Glazing needs attention, as to where the glass comes from, especially if English sheet or British plate is specified, as glaziers are anxious to put in Continental glass instead—inferior in quality and cheaper. Plumbing is a big subject, and in this paper I may well be excused if I only mention it. Electric-lighting and bell-wiring is one that also calls for attention, especially in the quality of the leads and the joints of the wires, and the proper isolation of circuits, &c., but as this branch of the building trade is making daily progress the quality of the workmanship accepted a year ago is not what will be passed to-day. Heating and ventilating is an interesting subject, but also requires a paper for itself. Painting is another, and all there is time to note here is the quality of the oils and the varnishes used, and to note the difference between real lead paints and sham lead paints, to be able to distinguish real metallic paints from vegetable paints. A great trouble to the clerk of works, as also to the men themselves, is the way painters are hurried with their work. No branch in the building trade is more pushed, and no branch should be less pushed than the painter's if good work is demanded.

The laying-off of ground surfaces and levelling and forming roads and paths, &c., all come under the eye and superintendence of the modern clerk of works, and many other large schemes require his constant attention.

One thing that strikes a clerk of works as a very common fault is the want of proper respect which one class of tradesmen shows to every other class of work but their own. This is a most regrettable fact, as well as one of the most annoying and vexatious experiences the clerk of works has to deal with. Another is the large number of men who are able to tell him what both he and the architect should do, and how much better they could have planned and carried out the work. And still another class is the man who is ready, figuratively, to fall down and worship him if desired, and yet, as is very apparent, is only waiting his opportunity to dodge by every means he can invent. Of course, each requires to be treated in the manner most suitable to his excellent qualities, but, after all, it is the intelligent, honest, industrious and first-class tradesman who makes the life of the clerk of works worth living.

It is not the duty of the clerk of works to come on a building like a roaring lion seeking whom he may devour. It will as a rule be more to the point for him to prevent disputes by timely vigilance than to prompt disputes; but when he does find a dispute is to be entered upon he should be very sure of his ground and very determined to face it out with fair-mindedness and candour.

After all that might be said on this subject, the clerk of works is only the deputy of his superior, the architect, and really fulfils his duties best when most perfectly interpreting what the architect wishes to carry out. It is therefore better for him to have work from one architect at a time.

New Patents.

The following specifications will be published to-morrow and will be open to opposition until February 17th. A summary of the more important of them will be given next week. The names in italics are those of communicators of inventions.

1901.—25,227, MEEHAN, fittings for electric installations in buildings. 25,449, LOVE, machine for winding sheet materials into pipes. 26,214, THEURER & HANSEN, kilns for cement, lime, &c.

1902.—401, RUSHWORTH, RUSHWORTH, & RUSHWORTH, cranes. 711, KENNEDY, water meters. 894, KENDRICK, screens for sand. 1,437, WALKER, pit-sinking and bricking appliances. 1,998, WILLIAMS, method of treating magnesite for bricks. 2,086, WHITE & GAMLINS, LTD., machines for boring woodwork. 2,871, COOMBER & BAUMGARTEN, elastic floor-coverings. 3,364, MARKS, (*Frerichs*), artificial stone. 4,917, MARKS, (*Frerichs*), bricks. 18,350, HADDAN (*Vaché*), lever flush valves. 19,866, OVEREND & OVEREND, sinks, lavatory basins, &c. 19,896, NÈGRE, mosaics. 20,194, PRICE, drain-testing machines. 22,104, ACKERMANN, girders. 22,263, RUEF, boilers for heating systems.

A Manchester Hospital.—The new St. Mary's Hospital for women and children has been erected on a plot of land at the corner of Oxford Street and Gloucester Street, Manchester. The structure is of brick and terra-cotta, built on the pavilion plan.

Bricks and Mortar.

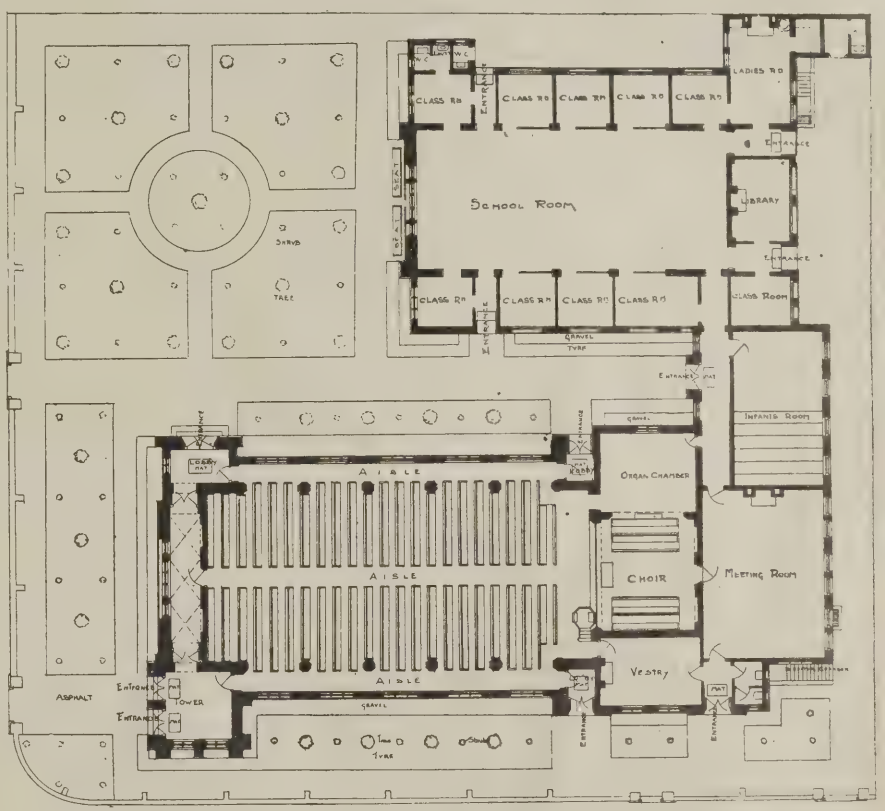
Aphorism for the Week.

Architecture is an engine of immense power, which may be used either for good or for evil; to abase and terrify the mind of man; to inspire the highest, freest, noblest sensations; to melt into the deepest melancholy; or to prompt the gay laugh of buoyant and enlivened spirits.—TARBUCK.

Our Plates. THE corner of the Sansovino library at Venice, shown in Mr Raine's drawing, was of course destroyed by the collapse of the Campanile—the three end bays of the arcades were absolutely smashed in, as can be very clearly seen by referring to the illustration on p 359 of our issue for July 23rd last. The taller building to the right, which was not injured, is known as the Procuratie Nuove, and was built in the sixteenth century, when the Piazza was enlarged for the third time. Scamozzi was the architect The beautiful library, which continues around on the Piazzetta side, was begun from Sansovino's designs in 1536.—The design for a town club-house, by Mr. Alfred E. Corbett, A.R.I.B.A., was exhibited at this year's Royal Academy.—The drawing of the Friary Church and Schools at West Bridgford, Nottingham, of which Mr. E. R. Sutton, of Nottingham, is the architect, was also exhibited at this year's Royal Academy. The schools were begun in 1898 and opened in the following year, while the church was begun in 1900 and opened in 1901. The church has been planned with a nave and side aisles; the latter will be used as passages, so that every seat will command an uninterrupted view of the pulpit. At the corner of Musters Road and Millicent Road is a tower 60ft. high, having two entrances. At the opposite corner is a porch entrance which is connected with the tower by a narthax. There are five entrances to the church. On the north side of the choir is the organ-chamber and on the south the vestry. A large meeting-room is provided behind the choir, which will also be used as a choir vestry. The floor is of wood. The entrances and lobbies are tiled. The roof is of open hammer-beam construction covered with green slates. The church will accommodate 450 persons. The external facings are of Coxbench stone, with Ancaster and Derbyshire stone dressings. The arcade piers are of stone, the lower portions cased with wood dado panelling. The woodwork of the roofs, doors, &c., is stained green. The school comprises a hall 56ft. by 26ft. wide, ten classrooms ranged on the sides of the hall, with folding partitions. The superintendent's room, library and young men's room are near the boys' main entrance A room for ladies is provided, with a spacious kitchen near the girls' entrance. All these rooms have separate entrances from the several lobbies, so that access may be had to them without the necessity of going into the large hall. Two of the classrooms, one on either side of the platform, are arranged so as provide convenient retiring-rooms for speakers and others. Advantage has been taken of the necessary deep foundations to form a large storeroom under the building. The roof is of open-timber work, with wrought-iron ties and principals. The windows in both the church and schools are glazed with tinted sheet-glass. A portion of each window is made to open. The contractors for the church are Messrs. Garton & Burton, and for the schools Mr. W. Maule.

Trafford Park. THE Manchester end of Trafford Park, which a few years ago was one of the finest domains in Lancashire, is now a scene of bustling industrial activity. Apart from the mammoth engineering works of the Westinghouse Co., there have sprung up in an incredibly short time more than a score of large industrial concerns, and for the convenience of the work-people employed nearly 2,000 cottages have been built within the last two years; mission rooms, a post-office, and a police station have also been provided for the benefit of this new colony, which has come into existence with almost American-like rapidity. In fact, the streets are laid out in the American style, and are given numbers instead of names.

Royal Architectural Museum. THE common seal of this museum and the Westminster School of Art has been affixed to the agreement with the Architectural Association for the transfer of the property to the Association. The following resolution was passed at a recent meeting of the members of the museum:—"That the Royal Architectural Museum and Westminster School of Art be wound up voluntarily, and that Mr. William Pain, F.R.I.B.A., of 63, Lincoln's Inn Fields, W.C., be, and he is hereby appointed, liquidator for the purpose of such winding up." The resolution will be submitted for confirmation at a second extraordinary meeting to be held on January 16th next. A presentation has been made to Mr. J. P. Seddon by the subscribers to the museum and to Mr. Adams for the services they rendered to the museum during the past quarter of a century.



FRIARY CHURCH AND SCHOOLS, WEST BRIDGFORD, NOTTINGHAM.
ERNEST R. SUTTON, ARCHITECT.

Mr. Holiday's New Enamel. A STAINED-GLASS window, "Suffer the Children to come unto Me," has been made by Mr. Henry Holiday for Hexham Abbey Church. In it there is no attempt at the blending of pigments. The colour is in the glass, and the shading—broad and simple—is done with a single brownish tint. The window is at present in Mr. Holiday's studio, where also may be seen a large picture of the Crucifixion in relief enamel—a style of work devised by Mr. Holiday himself. Ancient enamels were small, because the reflected light would make a large one difficult to see. But with relief enamel the sheen of the reflected light emphasizes the form and helps the impression on the spectator. The figures are modelled in clay, and thin sheet silver, copper and gilding metal are then shaped on plaster castings, and put into the furnace with the necessary colour in the form of powdered glass sprinkled upon them. A fine effect is obtained by the slight running of the melted glass in the furnace from the ridges into the folds and interstices of the relief. Thus a bright metallic lustre shines on the projecting folds, deepening gradually in the hollows as the coloured glass thickens.

The Temples at Philae. THE value of Philæ lies more in its beauty than in its antiquarian interest. The shrines situate on the Sacred Isle are indeed but as of yesterday when compared in point of date with the designs of a Cheops or of a Chephren, or even with the edifices of a far later period, those, for example, commenced by Seti I. and continued by his celebrated son Rameses II. Pharaoh's bed, though a beautiful building, possessing fourteen large sandstone columns, with the usual lotus and papyrus capitals, is of later date, and due to the conception of no Pharaoh. And similarly its great Temple of Isis is associated with what it is the fashion to term the time of decadence of Egyptian art. This shrine, with its two massive propylons, was commenced by Ptolemy Philadelphus and continued by Ptolemy Energetes, and subsequently to his reign by Ptolemy Philometor. The Island will only be partially submerged by the altered level of the Nile created by the new Assouan Dam, and even if it were to be completely under water its loss is not to be mentioned in the same day with that which the whole educated world would experience if a similar occurrence were to befall the Temples of Karnak.

Enquiries Answered.

The services of a large staff of experts are at the disposal of readers who require information on architectural, constructional or legal matters. Questions should in all cases be addressed to the Editor. The querist's name and address must always be given, not necessarily for publication.

Old Brass Lecterns.

NEWCASTLE.—EAGLE writes: "I am much obliged for the answer to my questions on p. 279 of your issue for December 10th; but I want to know where there are Pre-Reformation brass lecterns in England and their approximate date. I know of about eight, and I am told there are a few more."

It is unfortunate you did not make your first enquiry clearer. An exceedingly fine example of a fifteenth-century eagle brass lectern may be seen in the ancient church originally dedicated to St. Thomas à Becket's honour at Bovey Tracey in Devon. It stands immediately in front of the glorious old carved oak screen of the same date, which is, itself, one of the most beautiful of the many that still exist in the country. The church was built, according to tradition, in A.D. 1170 by Sir William de Tracy as an act of penance for the leading part he took in the murder of Archbishop Thomas of Canterbury. An excellent photograph of the screen, into which a view of the greater part of this lectern is incorporated, will be found in one of Mr. Cyril Ellis's series of about 400 views of church details. Mr. Ellis resides at 34, St. John's Church Road, N.E., and his sunlight reproductions of the interiors of ancient churches — especially those of the West-country—are excellent. Pugue, in his "Glossary," refers to Durham Abbey, where "at the north end of the high altar there was a very fine lettern of brass, where they sung the epistle and gospel, with a great pelican on the height of it, finely gilt, billing the blood out of her breast to feed her young ones, and her wings spread abroad, whereon lay the book. It was thought to be the finest lettern of brass in this country. It was all to be taken asunder with wrests, every joint from the other." I may add the story goes that during the religious troubles in England the brass lectern at Bovey Tracey was taken to pieces and buried, remaining underground many years until a more settled state of things happily came about, and it was restored to its original position. The accomplished authority quoted above tells us the most remarkable brass lecterns existing in England are at Norwich Cathedral, at King's College, Cambridge, and at Merton College Chapel, Oxford. HARRY HEMS.

Connecting Hot-water Pipes to Cylinders.

EXETER.—SHOP writes: "In preparing a drawing for a hot-water supply, with secondary flow and return, I showed the latter pipe returned to the upper part of the cylinder about 8in. from the top. I have since been requested to alter this and take it into the return pipe from cylinder to boiler. Which is the better method?"

The better method is to connect the secondary return to the primary return—that is, make the alteration as requested

G. A. A.

Fair Charge for Plans of Work not carried out.

X. Y. Z. writes: "A terrace of twenty-one small houses was to have been erected. All were alike, except that three had shops attached. Plans were prepared showing five in detail, the rest in block. Specifications were drawn up, bills of quantities for the whole twenty-one were taken out, and tenders obtained. If erected on the lowest tender the property would have given a clear return of 6 per cent. The building owner, however, thought the price too much, and decided not to build. What would be a fair charge to make him under the circumstances—one that could be sustained in court if necessary? There is nothing in the R.I.B.A. scale that exactly meets the case."

2½ per cent. should be charged on one pair of small houses and one house with shop attached, and 1 per cent. on the remainder for preparing plans, ½ per cent. on the whole for obtaining tenders, and 1 per cent. on the whole for preparing bills of qualities.

Removing Whitewash and Lime-whitening from Walls.

NORTHAMPTON.—ENQUIRER writes: "Which is the best way to remove old whitewash or limewhitening from a red brick wall? There are several coats on the wall, and I am anxious to remove them so as to harmonise with the wall above, which has not been whitened."

Scrape as much off as possible with iron scrapers and stiff wire brushes and remove the remainder by applying a strong solution of sulphuric or hydrochloric acid.

Pugging for Floors.

ST. ALBANS.—PUGGING writes: "Would sawdust on Mack slabs between floor joists be suitable as pugging?"

Sawdust is unsuitable. It harbours vermin, is not fireproof and is liable to rot. The most suitable pugging for any purpose is slag wool, but as "Mack" slabs are themselves fireproof and sound-resisting there is no special need for pugging: if any is used lime-mortar pugging would be satisfactory.

Overlooked Premises.

HITCHIN.—ENQUIRER writes: "At the back of my property some new Sunday schools have just been erected, a 5ft. 6in. oak fence (belonging to me) separating us. On the school side the ground has been recently raised considerably, so much that it is now easy for children to stand in the school grounds and overlook the whole of my back premises. Are they not thus injuring the lower portion of my fence, and have I no remedy from being overlooked in this manner?"

The only practical remedy is to raise the fence. Whether the school managers are liable for damage to the fence would be a nice legal point, probably not worth contesting, and depending upon the extent of the damage, if any. If the fence has now been made and acts as a retaining wall for the newly-raised ground, you would be at liberty to remove your fence and let the ground down, thus forcing the school managers to erect their own retaining wall. This ought to be done, or at least a formal written demand that the earth be independently supported should be put in, else in course of time the school will acquire a right of lateral support from the fence. If the matter is worth serious consideration, a local solicitor should be consulted to draft and serve the notice. G. A. T. M.

Minimum Depth for Sewer Pipes below Roadway.

LAXEY.—SUBSCRIBER writes: "What is the least depth of cover that may be used over 9in and 12in. sewer-pipes laid in a macadamised road in order that the pipes may be safe against damage from the traffic of loaded carts and traction engines passing over?"

To comply with these conditions it is recommended that not less than 5ft. of cover be provided for ordinary stoneware pipes, and 3ft. of cover for cast-iron sewer-pipes of heavy water-main strength. Shallow stoneware pipe sewers exposed to heavy and continuous traffic should either be surrounded with concrete or laid on a concrete bed, and the sides of the pipes carefully packed and haunched up with concrete. T. E. C.

Buildings to Measure in North Lincolnshire.

HULL.—PUPIL writes: "Kindly name some buildings in North Lincolnshire suitable to measure for the R.I.B.A. intermediate examination."

There is not much in the north of Lincolnshire except the church of Sutton St. Mary on the coast. In Lincoln Minster itself, and in the churches around Lincoln, such as those of St. Mary le Wigford, Coleby and Waddington of early and Navenby of later date, there is ample material. G. A. T. M.

Baptist Chapels.

CARDIFF.—BAPTIST writes: "(1) What is the size of the total immersion font in a Baptist chapel, and how and where is it placed? (2) What would be understood by 'a baptistery'—would it be the font or robing room? (3) What is the general arrangement of the classrooms in a Sunday school, and is the large hall simply used for assembly purposes?"

(1) 7ft. by 3ft. 6in. by 3ft. First, there is a platform, in the centre of which the baptistery is sunk, is surrounded on three sides by a partition about 12in. to 14in. high; this partition is also carried round the two sinkings about 2ft. 3in. wide, one on each side of the baptistery. These side sinkings are dry and lined with wood, and are there for standing space for a deacon on either side, whose duty it is to assist the person being baptized to rise from the water. The pulpit is on the baptistery. (2) The font or immersion tank in this case. (3) Classrooms should be grouped round a central hall. It would be well to study the Board of Education code, making the central hall and classrooms to the dimensions as required by the code. The assembly hall should not have a floor area to be of less than 1,200ft. super.; classrooms at least 10ft. super. per child, and not less than 22ft. wide. The hall can hold a class, but should be used, generally speaking, for assembly purposes only.

A. H. R.-T.

Superannuation.

WEST DULWICH.—LUX writes: "Is there any case which decides that a workman on a weekly wage may be superannuated as an officer under the Superannuation Act of 1860?"

The Superannuation Act of 1860 (23 & 34 Vict., c. 89) is a short Act for extending the powers of the Superannuation Act of 1859 (22 Vict., c. 26), whereby provision is made for the retirement of persons who may have served both in the office of the Secretary of State for India and likewise in the permanent Civil Service of the State, within the meaning of section 17 of the Superannuation Act of 1859. Such persons must have been transferred from any situation or employment in the permanent Civil Service entitling them to superannuation allowance under the Superannuation Act of 1859 to any situations or employment in the office of the Secretary of State for India entitling them to superannuation allowance under section 18, Government of India Act 1859 (21 & 22 Vict., c. 106), or *vice versâ*. No trace can be found of any particular case such as that indicated in your query. A superannuation allowance under this Act can only be looked for by those persons whose services strictly comply with the conditions laid down therein. T. E. C.

Architectural Lantern Slides.

KILMARNOCK.—H. D. T. writes: "Can lantern slides of building construction be procured? If so, where?"

No. It would be necessary to make your own slides. The easiest way is to make small scale tracings on paper 3¼in. by 3¼in.,

and make slides from these by contact in an ordinary dark room, in the same way that bromide prints are made from negatives. The resulting slides show white lines on a dark ground—of different tone according to the lantern plate and developer used.

G. A. T. M.

Architects as Barristers.

DUBLIN.—LEGAL writes: "Could an architect who has made a speciality of Court work (having read up Acts, authorities, &c., on matters pertaining to building and sanitary law, and gained a good practice in expert evidence, &c.) become a barrister? Could he retain his present practice as an architect while studying for the bar, and would he be prohibited from practising as an architect by becoming a barrister? Also, are there any persons practising who combine the two professions?"

There is nothing to prevent an architect from becoming a barrister on passing the usual examinations and paying the usual fees. He can practice as an architect prior to his call to the bar, and after call can practice as either barrister or architect or both. There are several barristers possessing engineering and architectural qualifications. Whether an architect who was also a barrister and who practised both as barrister and architect would be a success as either is, to say the least, a matter of great doubt. But that the qualifications of an architect or engineer, superadded to those of a barrister, or *vice versa*, would be a great assistance to the practitioner of either of these professions is perfectly clear.

W. JOHNSON-ROBERTS.

BUILDING AT BOMBAY.

Trade Brisk but Contractors Unenterprising.

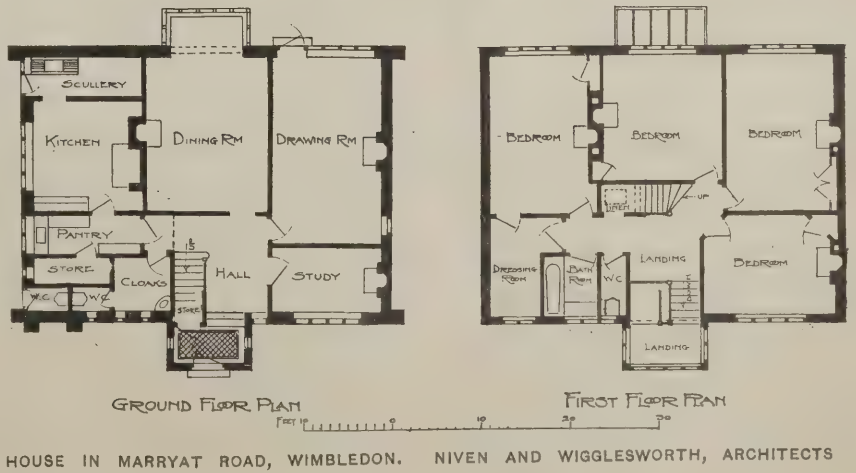
WE learn through one of our exchanges that the building trade in Bombay is just now abnormally active, but that the contractors (some of whom have suffered much delay owing to the dearth of skilled labour) do not show much enterprise in providing labour-saving appliances. Except an occasional steam-driven mortar-mill, there is neither stone-cutting, lifting of materials, general joinery, circular-sawing, moulding, planing, mortising or tenoning by power. The people, who for centuries have raised water from wells with the aid of a pair of bullocks, never even think of raising building materials by the same agency, although trained bullocks are always procurable. Technical instruction has not reached the building contractor, who, having had no education in craft, is in the hands of his *maistries*. These men, of course, shirk everything that they have not been used to; so work is delayed and the cost of building work is increased. There must be something wrong with the system of instruction in the largest school of joinery in the Bombay Presidency when employers say of the young men who have been trained there that they cannot begin any new job without receiving minute instructions as to how to set about it. They have not learned to think in terms of work, and this seems to be the fault of the building contractor, who thinks in terms of rates and quantities. "It is time that we had the stone-carving machine, and the machine for sawing stone with the aid of hard granulated steel powder. Building machinery should be on hire in Bombay at a suitable depôt, in charge of men who understand the use of it. These machines might either be let on hire, or sold and repurchased at the end of the job. They would then be put in good repair in prospect of further business." There seems to be a chance for the enterprising British contractor at Bombay.



ELEVATION TO ROAD.



BACK ELEVATION.



HOUSE IN MARRYAT ROAD, WIMBLEDON. NIVEN AND WIGGLESWORTH, ARCHITECTS

Surveying & Sanitation.

Wood Pavements are to be introduced into Calcutta.

Streets belonging to the Crown.—Among streets the whole or greater parts of which belong to the Crown are the Kensington Palace Gardens estate, including one side of Kensington High Street, the Millbank estate, on which the Tate Art Gallery, is erected, several of the "gates" of Hyde Park, on which princely mansions are built, Langham Place—including, however, very curiously, only one small corner of the Langham Hotel, a bow window being divided between the Crown and another landlord—the Queen's Hall and St. George's Hall, the south side of Regent Street, the north side of Regent Circus, including St. James's Hall, the south side of Piccadilly, the Criterion Theatre and Restaurant, part of St. James's Street, the west side of the Haymarket, including His Majesty's Theatre and the Carlton Hotel, Carlton House Terrace, Spring Gardens, with the offices of the London County Council, Pall Mall East, part of the Strand, including Exeter Hall, Morley's Hotel, Trafalgar Square, and Whitehall Place, including the National Liberal Club. In Holborn, Fetter Lane, including the Birkbeck Institution, Victoria Street, Westminster, and on Tower Hill and other parts of the City also, the Crown has property.

A Prize for an Essay on Fire Prevention.—The Council of the Society of Arts, acting on the recommendation of the judges appointed by them—Sir William H. Preece, K.C.B., F.R.S., Mr. Robert Kaye Gray and Mr. Alexander Siemens—have awarded the prize of £50, together with a silver medal, offered for an essay on "Existing Laws, By-laws and Regulations relating to Protection from Fire, with Criticisms and Suggestions," to Mr. T. Brice Phillips, Sanitary Inspector to the Uckfield Rural District Council, of 4, Aylesford Terrace, Uckfield. The Council have also awarded a prize of £10 with a bronze medal to Mr. George H. Paul, Lydford, Cyprus Road, Finchley, N., and a similar prize to Mr. W. Craig Henderson, D.Sc., 1, Brick Court, Temple, E.C., these two essays being considered to be equal in merit. They also consider the essay sent in by Captain Arthur W. C. Shean, 18, Finsbury Circus, E.C., to be worthy of honourable mention. The judges reported that the essays were on the whole of a meritorious character, and, generally, of a high class. It is proposed that the prize essay should be read as a paper at one of the ordinary meetings of the Society of Arts. In all twelve essays were received in response to the offer.

Oriental Drainage.—A book with this title has just been published by the "Times of India" Press, Bombay, price Rs. 12·8 (about 25s.). It is written by Mr. C. C. James, drainage engineer to the Bombay Municipality, and appears opportunely, for (says the "Indian Municipal Journal") "the plague epidemic, which is generally recognised as a filth disease, directed the attention of all our authorities to questions of sanitation." But our contemporary emphasizes the fact—hardly referred to in this book—that no good sanitary work can be accomplished in India without the co-operation of the people, which has hitherto been withheld. The rate of decomposition is much more active in India than in England. There is no self-acting sanitary system, and if the health or drainage departments are called on to do the part which properly belongs to the people, it can only result in an increase of public expenditure without a corresponding benefit. "So long as filth is thrown from the windows of ordinary dwellings, of hotels, and even of the municipal office into the street, while *nahanis* are used as latrines, and solid matters forced into the drainage pipes of houses, while water runs openly to waste in the presence of members of the municipal council and police alike, the sanitary regeneration of Bombay must be a very long way off."

Engineering Notes.

The Portsmouth Dockyard Extension will include the building of a new steam factory estimated to cost nearly £200,000. All the engineering work of the yard will be centred in it.

The new Workhouse Infirmary, Swindon, Wilts, has been supplied by Messrs. E. H. Shorland & Brother, of Manchester, with their patent Manchester stoves with descending smoke flues.

A Notable Bridge.—At a meeting of the Institution of Civil Engineers last Tuesday week (Mr. F. W. Webb, M.A., vice-president, in the chair) Mr. S. Martin-Leake, A.M.I.C.E., read a paper on "The Rupnarayan Bridge, Bengal-Nagpur Railway." The Rupnarayan Bridge at Kola formed part of the direct east-coast line between Calcutta and Madras. The Rupnarayan was both a river and a tidal creek. The bridge consisted of seven spans of 300ft. (314ft. 6in. from centre to centre of piers) and four spans of 100ft., two at each end. The piers were all built for a double road, but girders for one road only had been erected. The piers for the larger spans were founded on steel caissons 88ft. in height, 63ft. in length and 22ft. in width, with semi-circular ends. Each caisson weighed 385 tons. The girders were of a semi-bowstring type, each span weighing 546 tons. They were erected on two pontoons of steel 280ft. by 40ft. by 10ft. Each span was erected complete on the decks of the pontoons and then floated over the piers at high water, the piers having previously been built only to a height of 18ft. above low water. As the tide fell the pontoons floated away and left the spans supported on packings. The remaining 15ft. in height of the piers had been built as the spans were lifted. The lifting was effected with 150-ton hydraulic jacks. The total weight on the base of each pier was 8,697·5 tons, or 6·7 tons per sq. ft.

Gas v. Electric Lighting.—The electrical engineer of the St. Pancras Borough Council, Mr. S. W. Baynes, in a report he has presented to the Council on a proposal of the Gas Light and Coke Company to replace the present street gas lamps with improved lantern and fittings for lighting by the incandescent gas system, advises that the Electricity Committee should light all streets having distributing mains by electricity, and with incandescent gas only those streets wherein distributing mains are not likely to be laid. Mr. Baynes adds: "Ever since the inception of electricity as a practical illuminant it has had to contend against the powerful monopoly in lighting established by the gas companies, and as as it has forged steadily onward the old-time rivalry has become more acute, breaking out into active animosity in the form of circulars setting forth the distinctive claims of gas versus electricity—of course, greatly to the disadvantage of the latter. Availing ourselves of the prosperity of the St. Pancras municipal electric undertaking, we have year by year lowered the price of electricity until we eventually claim and advertise that we can supply electricity cheaper than gas; but when the question arises of extending our street lighting, are we to play into the hands of the gas company, and, in direct contravention of our explicit announcement, allow the inference to be drawn that electricity, after all, is dearer than gas?" Finally, Mr. Baynes points out that by sacrificing any profit the streets might be lighted to three times the brilliancy by electricity than by incandescent gas at practically the same or less cost.

The new Deep-water Dock at Cardiff, the work for which was begun in the early part of 1899, is nearly completed. Since the beginning of the operations, close upon 2,000 men have been permanently employed on the site of the new dock. A temporary stone embankment, extending for a mile and a half, was first made to encompass a portion of the site, while a second and a permanent embankment 9,000ft in length, and formed of the same material, has been built outside the former one. The space between the inner and outer banks of these earthworks was then filled in with spoil obtained from the excavations involved in the laying-out of the dock, upwards of 3,000,000 tons being deposited. The new dock covers an area of 50½ acres (exclusive of the dry docks). Its total length is 2,250ft., and its width varies from 800ft. to 1,000ft., while its depth below coping is 52ft. The entrance lock is 800ft. in length between the gates and 90ft. in width at the gates. The total depth of water over the sill will be 34ft. at high-water neap tides and 43ft. 6in. at high-water springs. At the south-west extremity two graving docks are in course of construction. One of these is 800ft. long and 85ft. wide, and the other 800ft. long and 75ft. wide. At the north end the new dock is connected with the Roath Dock by a communication passage 600ft. in length, with a minimum width of 90ft. The south side has been set apart for a number of special coaling cranes invented by Sir W. T. Lewis, under whose direction the dock has been built to the order of the Cardiff Railway Company. The estimated cost of the undertaking (including machinery and other appliances) is £1,500,000. The contract has been carried out from the plans designed by Mr. G. N. Abernethy and the late Mr. C. L. Hunter, formerly the chief engineer to the Cardiff Railway Company.

COMPETITION REFORM SOCIETY.

Sutton Coldfield Town Hall Competition.

THE committee of the Competition Reform Society disapproves of the existing conditions of the competition for a town hall at Sutton Coldfield, and is endeavouring to obtain a revision of them. Members are therefore requested to abstain from competing unless they receive a further communication to the effect that the conditions have been satisfactorily revised. The matter objected to is that the first premium will not be awarded if the lowest tender for the building work exceeds the architect's approximate estimate by 8 per cent. Surely the assessor would be as much to blame as the author of the design placed first.

Albert Memorial Mosaics.—Mr. John Clayton, the designer of the cartoons for the mosaics on the Albert Memorial, and a representative of the Venice and Murano Glass Co., Ltd., who executed the work, have made a close inspection of the mosaics, and find that, with a small exception, the whole of the coloured figures are in as good condition as the day they were fixed—now thirty years ago. The gold background, however, is seriously damaged, and it appears to be questionable whether metal tesseræ can withstand the influence of our climate. We understand that experiments are now proceeding to obtain gold cake which can resist the effects of frost and moisture; or, failing this, to find some suitable substitute for gold enamel.

Keystones.

The new Crematorium for London, at Golder's Hill, Hendon, was opened recently.

A Stained-glass Window has been placed in the east end of Puddlehinton Church, Dorset.

As a Memorial to Old Cheltonians killed in the South African War a reredos and Eleanor Cross are to be erected from designs by Mr. H. A. Prothero, F.R.I.B.A., of Cheltenham, who is an old Cheltonian, at a cost of about of £2,600.

The Egyptian Hall, in Piccadilly, London, is to come down. Mr. Maskelyne's lease will expire early in the new year, and the premises will be handed over to the tender mercies of the housebreaker as a preliminary to the erection of another and more imposing structure.

Sale of the Pease Estates.—The following estates will be sold by auction in February :—Hutton Hall estate, about 1,800 acres. (The hall is in Gothic style, and was erected in 1867.) Galley Hill dairy farm, Guisborough, with 85 acres. Pinchinthorpe House estate, adjoining Hutton Hall estate, with 270 acres. Nunthorpe Hall estate, an old Jacobean mansion at Nunthorpe, and 197 acres. Morton Grange estate, Morton, and 592 acres. Ayton Bank farm, Great Ayton, and 142 acres.

The new Conditioning-House at Bradford was opened last week. The building was originally planned by the late Mr. F. Wild, architect, of Bradford, but since his death in November, 1901, the work has been carried out under the supervision of Mr. F. E. P. Edwards, the City Architect. The whole cost of the building, independent of the site, has been £34,000. The contractors were—masons, Messrs. H. Birkby & Son; joiner, Mr. W. S. Bogg; ironfounders, Roberts, Ltd.; plumber, Mr. F. Higginbotham; painter, Mr. W. Townson; plasterers, Cordingley & Sons; and for cranes and electric lighting, Mr. Charles Bell.

Extensive Additions to Eden House are being carried out. The handsome mansion-house stands on the south side of the Deveron valley, close to the river, and overlooking the policies of Duff House. A new billiard-room will be introduced, as also a new library, a new morning-room, and several additional bedrooms, while the whole of the sanitary arrangements of the house will be thoroughly re-modelled. The architect is Mr. John Rust, city architect, Aberdeen. The contractors are—Masonwork, Messrs. P. Christie & Son, Turriff; carpenterwork, Mr. William Levenie, Banff; plumberwork, Mr. Henry S. Watson, Banff; plasterwork, Messrs. Sellar & Co., Aberdeen; slaterwork, Mr. A. G. Ross, Macduff; painter- and glazier-work, Mr. F. Watt, Banff; bellhanging-work, Mr. Henry S. Watson, Banff.

St. Edward's Church, Kingstone, was opened recently. Mr. Goodwin S. Packer, of Southport, was the architect, and the contractors were :—Mr. A. Moore, brick and stonework; Mr. W. Dyson, carpenter and joiner's work; Miss Fleming, slating and plastering; Mr. S. Rushforth, plumbing, glazing and gasfitting; Messrs. T. L. Stephenson & Sons, painting and decorations; Messrs. W. Oxley & Sons, foundation stone; Messrs. Norbury and Paterson & Co., Liverpool, pulpit and font; Messrs. Harry Hems & Sons, Exeter, reredos and choir stalls; Messrs. Craven, Dunnil & Co., Jackfield, mosaic work; Messrs. Newton, Chambers & Co., Sheffield, heating; Messrs. A. Grindod & Co., Sheffield, ventilation; Messrs. Swame, Bourne & Son, Birmingham, lead lights; Messrs. T. Thomason & Co., Manchester, gas standards, &c.

The Gloucester Railway Carriage and Wagon Co.'s Diary for 1903 includes a calendar for the periodic recurrence of fixed engagements, such as board or council meetings, &c.

Naish House, an historic Somerset mansion' near Portishead, was almost destroyed by fire on Christmas Day. The north-east angle of the house was completely burnt out, but the west wing was saved.

Statues for Berlin Cathedral.—The Kaiser has approved eight large statues to be erected in the new cathedral which is being built on the Spree Embankment, opposite the Royal Palace. The figures will be four metres in height.

The Petit Palais, in the Champs Elysées Paris, which was included in the Exhibition of 1900, was some time ago handed over to the Municipality of Paris. It has just been transformed into Le Palais des Beaux Arts de la Ville de Paris.

The new Isolation Hospital at Hendon was opened last week. The buildings have cost £7,500, and provide fourteen beds, administrative block, nurses' rooms, laundry, &c. They were constructed from designs by Mr. J. A. Webb, engineer to the Council.

Victoria and Albert Museum.—Considerable additions have recently been made to the collection of English woodwork and plaster casts, illustrating domestic architecture, temporarily placed in the passage leading from the entrance in Exhibition Road.

A Methodist Chapel at Dereham, Norfolk, has been erected. It is in Gothic style. Messrs. Hawkins & Sons, of Peterborough, were the architects, and Mr. Horace Mack, of East Dereham, was the builder. The cost of the building and site was about £725.

Newington Workhouse, in Westmoreland Road, Southwark, has been extended by the addition of relief offices, dispensary, married couples' quarters, nurses' home and nursery. Messrs. John Marsland & Son, of York Street, Walworth, were the contractors, and Mr. G. D. Stevenson, A.R.I.B.A., was the architect.

New Banking Premises at Cheltenham have been erected for Lloyd's Bank from designs by Mr. F. W. Waller. The High Street frontage is about 96ft. and the Rodney Road frontage 104ft. The height of the turret above the pavement is 68ft.; that of the balustrade 46ft.

Manchester Technical School: Chair of Architecture.—At a meeting of the Technical Instruction Committee of the Manchester Corporation held last week the arrangements were confirmed for the establishment of a Chair of Architecture at the School of Technology, under the joint auspices of the Owens College and the Corporation Committee, with the co-operation of the Manchester Society of Architects.

Explorations in Mexico.—At a meeting of the Royal Geographical Society held recently in the theatre, Burlington Gardens, Mr. Carl Lumholtz gave an address relating some of his experiences during five years' travel in North-Western Mexico. His researches were mainly of an ethnological and archæological character, and his main field was the Western Sierra Madre, which may be considered as a continuation of the Rocky Mountains stretching through the greater part of Mexico, and (under other names) through Central and South America. Mr. Lumholtz made four expeditions between the years 1890 and 1898, and on the first occasion took with him a number of scientific men and collectors. They crossed the Sierra Madre in the winter, and for ten months carried on excavations at San Diego near the famous ruins of Casas Grandes.

Greenwich Library Competition. — The assessor, Mr. Belcher, has placed the design of Mr. Sidney R. J. Smith, F.R.I.B.A., first, and that of Mr. N. Dinwiddy second.

A St. Helen's Competition. — Mr. E. Thomas, of Aughton, Lancs, has been awarded the first premium for a design for laying out the Park at St. Helen's, and Mr. G. Gensel, of Balham, London, S.W., the second premium.

A New Stained-Glass Window has been erected in St. Mary's Catholic Church, Sheffield, at the west window in the north aisle. It was carried out by Messrs. Meyer & Co., of London and Munich.

Fireproof Floors.—The tender of the Columbian Fireproofing Co., Ltd., 37, King William Street, E.C., has been accepted for the fireproof floors at the new building about to be erected on the site of Nos. 11 and 12, Finsbury Square. The architects are Messrs. Hesketh & Stokes, FF.R.I.B.A., of 110, Cheapside, and the builders Messrs. Perry Brothers, of Cambridge Heath.

Two Consumptive Sanatoria erected by the Glasgow District Lunacy Board for the treatment of consumptive patients among the insane were opened recently. One is in proximity to the general asylum buildings at Gartloch, which is situated about six miles to the east of Glasgow. The other is at Woodilee Asylum, which is situated a few miles further to the east of the city. These sanatoria have been constructed entirely of composite wood and iron, building materials involving very much less cost than would have been necessary in erections composed of brick or stone. Messrs. Spiers & Co. were the contractors.

A new Board School at Rutherglen, Glasgow, has been erected at a cost of £13,000. It is three storeys high, with accommodation for 1,000 pupils. The following were the contractors :—Builders, Messrs. J. Park & Son, Rutherglen; joiners, Messrs. Warnocks & Horsburgh, Rutherglen; slaters, Messrs. Anderson & Crawford; plasterers, Messrs. Calder & Sons; tile layers, Messrs. J. Youden & Co., Glasgow; glaziers, Messrs. Wm. Meiklem & Son; heating engineers, Messrs. J. Cormack & Son. The Bennett Furnishing Co. supplied the desks, &c. Mr. William Ferguson, of Glasgow, was the architect.

Sir Arthur Sullivan Memorials.—A bas relief designed by Mr. Goscombe John, A.R.A., for St. Paul's, was placed in a position sanctioned by the Dean and Chapter in the body of the Cathedral last November. The other week two busts of the distinguished musician, one in marble and one in bronze, were delivered to the Royal College and to the Royal Academy of Music, and are to be placed in the respective concert halls of those representative institutions. In March next the London County Council have authorised the erection of a bust of Sir Arthur on the Thames Embankment, as nearly as possible opposite to, and facing towards, the Savoy Theatre. Mr. Goscombe John, A.R.A., is the author of the works completed and of that under execution.

TO CONTRIBUTORS.

The Editor will be pleased to consider any articles, illustrated or otherwise, dealing with old and new buildings, methods of construction, or other matter of an architectural character. He will also be glad to consider architectural photographs and sketches (the latter preferably in black and white) and measured drawings of work in this country or abroad. News items of interest to architects and builders will also be considered, provided the name and address of the sender are given; no notice will be taken of anonymous contributions. All communications should be addressed to the Editor of the Builders' Journal, Effingham House, Arundel Street, Strand, W.C.

Complete List of Contracts Open.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDERS MAY BE OBTAINED.
	BUILDING:		
Jan. 1	Glenville, co. Cork—Priest's House		S. F. Hynes, 21 South Mall, Cork.
,, 1	Dorking—Alterations, &c., to Workhouse	Union Guardians	G. Scales, Clerk, Dorking.
,, 1	St. Margaret's, Dover—Four Houses		V. Shone, Architect, Market Square, Dover.
,, 2	Tamworth—Ventilators	Workhouse Guardians	J. W. Godderidge, Architect, Bolebridge Street, Tamworth.
,, 2	Bootle, Lancs—School Superstructure	School Board	T. Cox, 11 Dale Street, Liverpool.
,, 3	Bridlington—Terrace Steps, &c.		Headmaster, Bridlington Grammar School.
,, 3	Grasmere, Westmorland—Rebuilding Bridge	Urban District Council	J. Bintley, 7 Lowther Street, Kendal.
,, 3	Haverhill, Suffolk—Rebuilding Bridge	West Sussex County Council	A. A. Hunt, County Architect, Sudbury.
,, 3	Milnsbridge, Huddersfield—Villa		T. H. & F. Healey, Architects, Tyrell Street, Bradford.
,, 3	Weston-super-Mare—House		H. Price & W. Jane, Architects, Waterloo St., Weston super-Mare.
,, 3	Wooley Bridge, Hadfield—Two Shops	Hadfield Equit. Co.-op. Soc., Ltd.	J. W. Pogson, Secretary, Society's Office, Hadfield.
,, 5	Wortley, Leeds—Alteration to House	E. O. Wooler	T. A. Buttery & S. B. Birds, Architects, Queen Street, Morley.
,, 5	Pontypool—Alterations to School	Trevethin School Board	H. Bythway, Clerk, Pontypool.
,, 5	Londonderry—Café	Temperance Council	M. A. Robinson, Architect, Richmond Street, Londonderry.
,, 5	Abertysswg and Tredegar, Wales—School, &c.	Bedwellty School Board	James & Morgan, Architects, Charles Street Chambers, Cardiff.
,, 5	Gloucester—Reconstructing Culvert		R. Read, City Surveyor, Guildhall, Gloucester.
,, 5	Stornoway—Municipal Buildings, &c.		J. Robertson, Architect, Inverness.
,, 5	London, N.E.—Dormitories, Maternity Wards, &c.	Bethnal Green Guardians	W. A. Finch, 76, Finsbury Pavement, E.C.
,, 5	Trowbridge, Wilts—Hospital	Isolation Hospital Committee	J. H. Goodman, Architect, Town Hall Chambers, Reading.
,, 5	Aber, near Caerphilly, Wales—Ninety-five Cottages	Windsor Building Club	E. Thomas, 19 Eirw Road, Porth.
,, 5	Heworth, Durham—Schools	School Board	G. Bell, Westgate Road, Newcastle-on-Tyne.
,, 5	Leytonstone—Schools	School Board	W. Jacques, 2 Fen Court, Fenchurch Street, E.C.
,, 6	Acton—Lodge, House, &c.	District Council	D. J. Ebbetts, 242 High Street, Acton.
,, 6	Northwich—Infirmary Extension		J. Holland, Architect, Hayhurst Street, Northwich.
,, 6	Strabane, Ireland—Cottages	Rural District Council	J. E. Sharkie, Clerk, Urban District Council, Strabane.
,, 6	Boscomoor, near Penkridge, Staffs—Repair of Bridges	Cannock Rural District Council	H. M. Whitehead, District Surveyor, Mill Street, Penkridge.
,, 6	London, W.—Coal Offices	Great Western Railway Co.	Engineer, Paddington Station.
,, 6	Mountain Ash, Wales—Parcels Office	Great Western Railway Co.	Engineer, Neath Station.
,, 7	Ystradgynlais, Wales—Shop, &c.		T. Williams, Engineer, Pelican Street, Ystradgynlais.
,, 7	Sheerness—Building for Bakery	Economical Society Ltd.	J. H. Burrows, Secretary, Society's Office, Sheerness.
,, 7	Weybridge—Repairs, &c., to Fire Station	Urban District Council	J. S. Crawshaw, Surveyor, Council Offices, Weybridge.
,, 7	Belfast—Clubhouse	Belfast Bowling Club, Ltd.	H. Hobart, Architect, Dromore, Co. Down.
,, 7	Grays, Essex—Library	Urban District Council	C. M. Shiner, 6, 7 & 8, Crutched Friars, E.C.
,, 7	Manchester—Foundations of Central Fire Station	Watch Committee	W. Windsor, 37 Brown Street, Manchester.
,, 8	Uxbridge—Building	Rural District Council	J. F. Stow, Surveyor, Corn Exchange, Uxbridge.
,, 9	Hull—Covered Market	Markets Committee	J. H. Hirst, City Architect, Town Hall, Hull.
,, 9	Nelson, Lancs—Fire-clay Goods	Gas Committee	A. J. Hope, Engineer, Gasworks, Nelson.
,, 12	Cromer—Electric Light Station	Urban District Council	O'Gorman & Cozens-Hardy, 82 Victoria Street, Westminster
,, 12	Tylorstown, Wales—Enlargement of Schools	Ystradyfodwg School Board	J. Rees, Architect, Hillside Cottage, Pentre.
,, 13	Ilkeston—Free Library	Corporation	Hunter & Woodhouse, Architects, Belper.
,, 13	Plymouth—Lecture Table, &c.	School Board	E. C. Cook, 18 Princess Square, Plymouth.
,, 16	Water Fulford, near York—Asylum		A. Creer, Architect, Guildhall, York.
,, 19	Wemyss Bay and Inverkip, Scotland—Station Buildings	Caledonian Railway Co.	Engineer, Buchanan Street, Glasgow.
,, 19	Harelaw, Durham—Bridge	Weardale Rural District Council	G. W. Egglestone, Highway Surveyor, Stanhope.
,, 22	Camborne, Cornwall—Offices and Fire Station	Urban District Council	S. Hill, Architect, Redruth.
,, 22	Middleton, Lancs—Post Office		Stones & Stones, 10 Richmond Terrace, Blackburn.
,, 26	Walthamstow—School, &c.	School Board	H. Prosser, Architect, School Board Offices, Walthamstow.
	ENGINEERING:		
Jan. 1	Bilston—Pipe Trench	Urban District Council	J. P. Wakeford, Surveyor, Town Hall, Bilston.
,, 1	Canterbury—Electric Clocks, &c.	Asylum Committee	Borough Electrical Engineer, Electricity Works, Canterbury.
,, 2	Sunderland—Boiler	Corporation	J. F. C. Snell, Borough Electrical Engineer, Town Hall, Sunderland.
,, 2	Penybont, Wales—Waterworks	Rural District Council	J. & F. J. Hurley, 10 Bridgend Road, Tondu.
,, 5	Glasgow—Electric Motor Equipments	Corporation	J. Young, 88 Renfield Street, Glasgow.
,, 5	Stalybridge—Cable, &c.	Electricity Board	F. Schofield, Clerk, Town Hall, Stalybridge.
,, 5	Kettering—Waterworks, &c.	Urban District Council	T. R. Smith, Engineer, Market Place, Kettering.
,, 5	Tring—Engine House, Rising Main, &c.	Urban District Council	Wilcox & Raikes, 63 Temple Row, Birmingham.
,, 5	Falmouth—Pier Improvements	Town Council	L. G. Mouchel, 38 Victoria Street, Westminster.
,, 5	Clacton-on-Sea—Meters	Urban District Council	S. Francis, Engineer, Town Hall, Clacton-on-Sea.
,, 6	Teignmouth—Gasworks Extensions, &c.	Urban District Council	J. A. Gray, Gas Engineer, Teignmouth.
,, 6	India Office, S.W.—Railway Wagons, Dredger, &c.		Director-General of Stores, India Office, Whitehall, S.W.
,, 6	Cork—Piers	County Council	J. G. M'Carthy, Secretary, Court House, Cork.
,, 6	Bristol—Surface Condensers, &c.	Electricity Committee	H. F. Proctor, City Electrical Engineer, Temple Backs, Bristol.
,, 7	Lowestoft—Tramways	Corporation	R. B. Nicholson, Town Clerk, Lowestoft.
,, 7	Barnsley—Sandwashers, &c.	Corporation	Borough Surveyor, Manor House, Barnsley.
,, 7	Bolsover, Chesterfield—Steam Road Roller	Urban District Council	J. Hunter, Clerk, Bolsover.
,, 8	Nottingham—Bridge over Canal	Works and Ways Committee	A. Brown, City Engineer, Guildhall, Nottingham.
,, 10	Downpatrick—Cooking Appliances	Lunatic Asylum Committee	Graeme-Watts & Tulloch, 77A Victoria Street, Belfast.
,, 13	Barking—Heater	Urban District Council	C. P. Dawson, Surveyor, Council Offices, Barking.
,, 13	Oldham—Elevators and Conveyors	Electricity Committee	A. Andrew, Gas and Water Offices, Oldham.
,, 13	Wanborough, near Swindon—Waterworks	Highworth R.D.C.	F. Redman, 24 Wood Street, Swindon.
,, 14	Stoke-on-Trent—Electrical Plant	Corporation	P. J. S. Tiddeman, Borough Elec. Engr., Field Pl., Stoke upon-Trent.
,, 14	Devonport—Septic Tanks, Filters, &c.	Town Council	J. F. Burns, 29 Ker Street, Devonport.
,, 15	Egremont, Cheshire—Electrical Plant	Wallasey U.D.C.	J. H. Crowther, Engineer, Great Float, near Birkenhead.
,, 15	Milton-next-Sittingbourne—Waterworks	Urban District Council	G. F. Deacon, 16 Great George Street, Westminster, S.W.
,, 16	London, E.—Steam Dynamo	Stepney Borough Council	A. Wright, 27 Osborn Street, Whitechapel, E.
,, 16	South Molton, Devon—Gasworks	Town Council	L. Riccard, Town Clerk, South Molton, Devon.
,, 20	London, E.—Bridge Reconstruction	London County Council	Engineer's Department, County Hall, Spring Gardens, S.W.
,, 20	Erith, Kent—Filth Screens, Hydraulic Engines, &c.	London County Council	Engineer's Department, County Hall, Spring Gardens, S.W.
,, 21	Wellington, New Zealand—Tramways, &c.	City Council	W. R. Wright, 3 Victoria Street, Westminster.
,, 22	Ipswich—River Work, &c.	Corporation	W. Bantoft, Town Clerk, Town Hall, Ipswich.
,, 24	Scrabster, Caithness, Scotland—Harbour Extension	Harbour Trustees	J. Barron, 1 Bonaccord Street, Aberdeen.
Feb. 26	Bulawayo, Rhodesia—Electric Tramway	Municipal Council	Davis & Soper, 54 St. Mary Axe, E.C.
	FURNITURE:		
Jan. 3	Halifax—Furnishing School	School Board	W. H. Ostler, 22 Union Street, Halifax.
,, 7	Leytonstone—Furniture for Infirmary	West Ham Union Guardians	F. E. Hilleary, Clerk, Workhouse, Leytonstone, N.E.
	IRON AND STEEL:		
Jan. 1	Grantown, Scotland—Iron Fencing		D. Grant, Solicitor, Grantown.
,, 1	Bilston—Cast-iron Pipes	Urban District Council	J. P. Wakeford, Surveyor, Town Hall, Bilston.
,, 3	Harrogate—Tools, Castings, &c.	Corporation	F. Bagshaw, Borough Engineer, Municipal Offices, Harrogate.
,, 3	Warrington—Pipes	Water Committee	J. Deas, Water Engineer, Municipal Buildings, Warrington.
,, 5	Sheffield—Steel and Ironwork for Retort Bench	United Gas Light Co.	J. W. Morrison, Engineer, Commercial Street, Sheffield.
,, 6	Southall, Middlesex—Fencing and Gates	Urban District Council	R. Brown, Engineer, Public Offices, Southall.
,, 6	Strabane, Ireland—Fences and Gates	Rural District Council	J. E. Sharkie, Clerk, Council Offices, Strabane.
,, 12	London, S.E.—Stores	Camberwell Borough Council	W. Oxtoby, Borough Engineer, Town Hall, Camberwell, S.E.
,, 13	Christiania—Steel Rails	Norwegian State Railways	Director of Norwegian State Railways, Christiania.
,, 15	Ottawa—Rails		L. K. Jones, Secretary, Department of Railways, Canals, Ottawa.
,, 20	Southall, Middlesex—Fencing and Gates	Urban District Council	R. Brown, Engineer, Public Offices, Southall.
,, 27	Hastings—Pipes	Corporation	P. H. Palmer, Waterworks Engineer, Town Hall, Hastings.
Feb. 6	Cape Town—Locks		Agent-General for Cape Colony, 100 Victoria Street, S.W.
	PAINTING AND PLUMBING:		
Jan. 3	Harrogate—Oils, White Lead, Colours, &c.	Corporation	F. Bagshaw, Borough Engineer, Municipal Offices, Harrogate.
,, 6	London, S.W.—Painting and Decorating Mortuary and Court	Fulham Borough Council	Borough Surveyor, Town Hall, Fulham.
,, 12	London, S.E.—White Lead, Paints, Oils, &c.	Camberwell Borough Council	W. Oxtoby, Borough Engineer, Town Hall, Camberwell, S.E.

Complete List of Contracts Open — *continued.*

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDERS MAY BE OBTAINED.
	ROADS AND CARTAGE:		
Jan. 2	Swanley—Cartage	Metropolitan Asylums Board	T. D. Mann, Clerk, Board's Offices, Embankment, E.C.
" 3	Wakefield—Street Works	Corporation	City Surveyor, Town Hall, Wakefield.
" 3	Felixstowe—Making-up	Urban District Council	S. E. Fisher, Surveyor, Town Hall, Felixstowe.
" 3	Harrogate—Materials, &c.	Corporation	F. Bagshaw, Borough Engineer, Municipal Offices, Harrogate.
" 5	Whickham, Durham—Street Formation	Urban District Council	J. B. Renton, Surveyor, Council Offices, Whickham.
" 5	Lower Bebington, Cheshire—Laying-out Recreation Ground	Urban District Council	Surveyor, Council Offices, Lower Bebington.
" 6	London, W.—Tip Cart	Acton District Council	D. J. Ebbetts, 242 High Street, Acton.
" 6	Croydon—Road Repair	Town Council	Borough Road Surveyor, Town Hall, Croydon.
" 6	Hounslow—Road Works	Heston and Isleworth U.D.C.	P. G. Parkman, Surveyor, Town Hall, Hounslow.
" 6	Waterloo, Lancs—Street Works	Urban District Council	F. S. Yates, Surveyor, Town Hall, Waterloo.
" 8	London, S.E.—Tar Paving, &c.	Southwark Union Guardians	G. D. Stevenson, 13 and 14 King Street, Cheapside, E.C.
" 10	Dollar, Scotland—Causewaying	Town Council	Town Clerk, Dollar.
" 10	Kirkcaldy—Streets, &c.	R. C. Munro-Fergusson	W. D. Song, C.E., Kirkcaldy.
" 14	London, S.E.—Materials and Cartage	Camberwell Borough Council	W. Oxtoby, Borough Engineer, Town Hall, Camberwell, S.E.
" 21	Hollingbourn, Maidstone—Materials	Rural District Council	H. J. Bracher, 33 Earl Street, Maidstone
" 22	Castleford—Improvement Works	Urban District Council	W. Green, Surveyor, Council Offices, Castleford.
" 27	Capetown—Streets		Davis & Soper, 54 St. Mary Axe, E.C.
	SANITARY:		
Jan. 1	Youghal, Ireland—Sewerage Works	Urban District Council	Clerk, Town Hall, Youghal.
" 2	Spondon, Shardlow. Derbyshire—Scavenging	Shardlow R.D.C.	J. W. Newbold, Clerk, Becket Street, Derby.
" 3	Harrogate—Disinfectants, Pipes, &c.	Corporation	F. Bagshaw, Borough Engineer, Municipal Offices, Harrogate.
" 3	Stanley, Yorks—Sewers	Urban District Council	F. Massie, Engineer, Tetley House, Wakefield.
" 5	Bishop Auckland—Sewer, &c.	Rural District Council	C. Johnston, Surveyor, Crofton House, Bishop Auckland.
" 5	Dunston, Gateshead—Sewer	Whickham U.D.C.	J. B. Renton, Surveyor, Council Offices, Whickham.
" 5	Bispham, Lancs—Sewerage Works	Carleton Joint Sewerage Board	A. Hindle 44 Abingdon Street, Blackpool.
" 5	Bispham, Lancs—Pipes, &c.	Carleton Joint Sewerage Board	A. Hindle, 44 Abingdon Street, Blackpool.
" 5	London, N.—Sewers, &c.	Hornsey U.D.C.	E. J. Lovegrove, Engineer to Concl, Southwood Lane, Highgate, N.
" 5	Tring—Sewage-Disposal Works	Urban District Council	Willcox & Raikes, 63 Temple Row, Birmingham.
" 5	Watlington, near Henley-on-Thames—Sewers	Henley R.D.C.	J. Taylor, Sons and S. Crimp, 27 Great George Street, Westminster
" 9	Old Hill, Staffs—Scavenging	Rowley Regis U.D.C.	D. Wright, Clerk, Council Offices, Old Hill, Staffs.
" 10	Cresswell, near Chesterfield—Sewerage Works	Clown R.D.C.	E. Hazledine-Barber, Engineer, Hollin Hill, Clown, Chesterfield.
" 10	Shalford, Guildford—Scavenging	Hambledon R.D.C.	F. Smallpiece, 138 High Street, Guildford.
" 12	London, S.E.—Stoneware Pipes, Disinfectants, &c.	Camberwell Borough Council	W. Oxtoby, Borough Engineer, Town Hall, Camberwell, S.E.
" 14	Devonport—Septic Tanks, Filters, &c.	Town Council	J. F. Burns, 29 Ker Street, Devonport.
" 20	Erith, Kent—Filth Screens, &c.	London County Council	Engineer's Department, County Hall, Spring Gardens, S.W.
	TIMBER:		
Jan. 3	York—Creosote Oil	North-Eastern Railway Co.	E. H. Clark, Stores Superintendent, Gateshead.
" 6	Strabane, Ireland—Fences and Gates	Rural District Council	J. E. Sharkie, Clerk Council Offices, Strabane.
" 7	London, E.—Timber	Poplar Union Guardians	G. H. Lough, 45 Upper North Street, Poplar, E.

List of Competitions Open.

DATE OF DELIVERY.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Jan. 15	Kingston-on-Thames—Cottage Homes for Children	£25, £15, £10.	J. Edgell, Clerk to Guardians, Coombe Lane, Kingston-on-Thames.
" 20	Workington—Public Library	£25, £15, £10.	W. L. Eaglesfield, Borough Surveyor, Workington.
" 31	Cape Town—University Buildings	£400, £200, £100.	Agent-General for the Cape of Good Hope, London.
" 31	Hull—Town Hall Extension	£300, £200, £100.	E. Laverack, Town Clerk, Town Hall, Hull.
Feb. 13	Patras, Greece—Church	£400, £160, £80.	Committee for new Church of St. Andrew, Patras, Greece.
" 20	Sutton Coldfield—Town Hall	£50, £30, £20.	W. A. H. Clarry, Borough Surveyor, Council House, Sutton Coldfield.
" 28	Bridgwater—Appliances for Silt Disposal		W. T. Baker, Town Clerk, King Square, Bridgwater.
March 31	Hull—Extension of Town Hall	£300, £200, £100.	E. Laverack, Town Clerk, Town Hall, Hull.
No date.	Kettering—Free Library	£60, £40, £25.	J. Bond, Clerk, Council Offices, Kettering.
"	Pontypridd—Public Offices		J. C. Jones, Clerk, Urban District Council, Pontypridd.

Coming Events.

Friday, January 2.

INSTITUTION OF JUNIOR ENGINEERS.—Mr. H. M. Routhwaite, M.I.M.E., on "Modern Marine Boilers: a Consideration of the Relative Values of different types," 8 p.m.

Saturday, Jan. 3.

BRITISH INSTITUTE OF CERTIFIED CARPENTERS.—Meeting at 6 p.m. Financial Report for 1902.

Monday, Jan. 5.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.—Business meeting at 8 p.m.

LIVERPOOL ARCHITECTURAL ASSOCIATION.—Mr. C. Harrison Townsend on "Mosaic Work."

Tuesday, Jan. 6.

MANCHESTER SOCIETY OF ARCHITECTS (Students Meeting).—Mr. J. T. Wynyard Brooke on "Heating and Ventilating."

ASSOCIATION OF TECHNICAL INSTITUTIONS.—Meeting at Goldsmiths' Hall, E.C. Lord Avebury presides. Sir Wolfe Barry delivers an address.

GLASGOW ARCHITECTURAL ASSOCIATION.—Mr. Alexander N. Malcolm on "Belgium and its Cities," 8 p.m.

Wednesday, Jan. 7.

LONDON INSTITUTION.—Rev. Canon Benham, D.D., F.S.A., on "Old London: Two Old Churches," 4 p.m.

ARCHITECTURAL ASSOCIATION (Discussion Section).—Mr. J. H. Pearson on "Some Points in Ancient Lights Practice," 7.30 p.m.

EDINBURGH ARCHITECTURAL ASSOCIATION.—Mr. A. Hunter Crawford on "The Building of a House"—I. 8 p.m.

NORTHERN ARCHITECTURAL ASSOCIATION.—Students' Evening.

Thursday, Jan. 8.

SOCIETY OF ANTIQUARIES OF LONDON.—Meeting at 8.30 p.m. Ballot for Election of Fellows.

CIVIL AND MECHANICAL ENGINEERS' SOCIETY.—Mr. A. Marshall Arter, A.M.I.C.E., on "Indicating High Speed Engines," 8 p.m.

MANCHESTER SOCIETY OF ARCHITECTS.—Mr. A. W. S. Crosse on "Competitions."

Friday, Jan. 9.

LONDON INSTITUTION.—Rev. Canon Benham on "Old London—3. Old People," 4 p.m.

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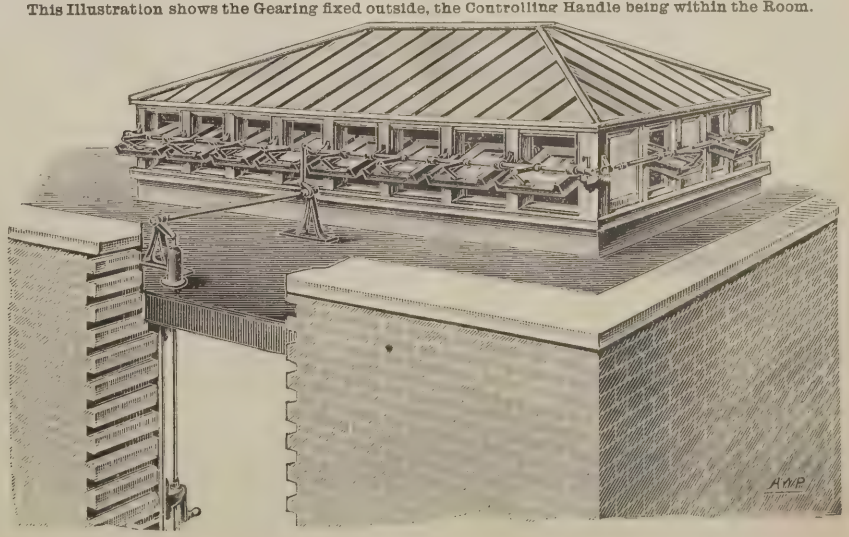
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Tenders.

Information from accredited sources should be sent to "The Editor" at latest by noon on Monday if intended for publication in the following Wednesday's issue. Results of Tenders cannot be accepted unless they contain the name of the Architect or Surveyor for the work.

Addressed postcards on which lists of tenders may be stated will be sent post free on application to the Manager, BUILDERS' JOURNAL, *Effingham House, Arundel Street, Strand, W.C.*

Acton, W.—For the erection of the South Acton (Boys) Board School, for the School Board for Acton, W. Messrs. Edward Monson & Sons, architects to the Board, Acton Vale, W., and 22 Buckingham Street, Adelphi, W.C. Quantities by Mr. F. T. W. Miller, 9 Queen Anne's Gate, S.W.:—

W. G. Dickens, Haven Green, Ealing, W.	£16,670
Patman & Fotheringham, Theobald's Road, W.C.	14,900
Godson & Sons, Kilburn, N.W.	14,665
George Gray, Egham, Surrey	14,639
Barker & Co., Ltd., Kensington, W.	14,550
Kingerlee & Sons, Queen Street, Oxford	14,287
Foster Brothers, Norwood Junction, S.E.	14,266
W. J. Renshaw, Putney, S.W.	13,997
Spencer, Santo & Co., Warwick Road, Kensington	13,985
F. & E. Davey, Southend	13,984
Appleby & Sons, Lambeth, S.E.	13,920
Speechley & Smith, Kew Road, Richmond	13,700
Charles Brightman, Watford	13,660
Lawrence & Son, Canal Works, Waltham Cross	13,494
Walter Wallis, Ramsden Road, Balham	13,450
Knight & Son, Bruce Grove, Tottenham	13,384
R. L. Tonge, Jubilee Road, Watford	13,300
Treasure & Son, Cottenham Road, Holloway	13,248
Hunt & Son, High Wycombe	12,735
W. Blackburn,* Elliott Road, Chiswick	12,436
Mark G. King, High Street, Teddington	12,174

[Architect's estimate, 12,643.]

* Accepted subject to the approval of the Board of Education.

Astwood Bank.—For Astwood Bank water-supply works, for the Feckenham Rural District Council. Messrs. Willcox & Raikes, engineers, 63, Temple Row, Birmingham:—

Contract No. 1—Pipes.

Watson, Gow & Co., Glasgow	£1,270 15 0
J. & R. Ritchie, Middlesbrough	1,241 7 4
Cochrane & Co., Dudley	1,237 2 8
J. & S. Robert, Ltd.,* West Bromwich	1,190 15 10

Contract No. 2—Pipelaying.

Reid Brothers, London	£2,081 0 0
J. Barnes, Northfield	1,876 0 0
G. Huxley, Astwood Bank	1,737 0 0
Johnson & Langley, Leicester	1,735 11 3
J. Mackay, Smethwick	1,608 4 3
H. Law, Erdington	1,565 0 0
G. Law, Kidderminster	1,537 0 0
J. G. Fincher & Co., Stratford-on-Avon	1,510 0 0
Cruwys & Hobrough, Birmingham	1,427 0 0
S. Wood, Bristol	1,381 9 8
J. H. Vickers, Nottingham	1,346 0 0
R. W. Fitzmaurice & Co., Birmingham	1,286 0 0
T. Rowland, Northwich	1,280 0 0
M. Thompson, Briton Ferry	1,258 15 1
T. Vale, Stourport	1,256 10 0
W. Jowett, Prescot	1,250 13 6
J. Nevitt,* Stafford	1,122 10 0

* Accepted.

Bromley (Kent).—For certain works of public street improvements to be executed in sewering, levelling, paving, metalling, channelling, and the widening of a portion of the High Street, within their district, for the Urban District Council:—

W. Peters & Co., Stepney, E.	£2,170 14 5
E. Peill & Sons, Bromley, Kent	1,863 18 9
Fry Brothers, Lion Wharf, Greenwich	1,847 17 0
Lawrence & Thacker, London, S.W.	1,673 15 8
H. Woodham & Sons, Langley Road, Catford	1,595 13 7
J. Mowlem & Co., Westminster, S.W.	1,585 6 5
Wilson, Border & Co.,* 1, Derby Gardens, Seven Kings, Ilford	1,481 1 6

* Accepted.

Cardiff.—For the erection of new accident wards at the Cardiff Infirmary. Mr. Edwin Seward, F.R.I.B.A., architect, Queen's Chambers, Cardiff.

Lattey & Co., Allensbank Road	£1,371 16
D. Thomas & Son, 108, Richmond Road	1,343 0
S. J. T. Grinter, Tewkesbury Place	1,292 0
Blacker Brothers, Clive Road	1,262 12
Price Brothers, Pontcanna Road	1,229 0
J. Allan, Woodville Road	1,200 0
A. W. Cadwallader, Dalcross Street	1,200 0
G. Hallett, 43, Partridge Road	1,190 0
C. C. Dunn, 307, Cowbridge Road	1,178 15
Knox & Wells, Bangor Road	1,169 0
Gough Brothers, 1A Wellfield Road	1,145 0
W. Thomas & Co., Tresillian Terrace	1,128 0
E. R. Evans & Brothers, Gwenneth Street	1,097 18
W. Symonds, Rectory Road	1,073 0
F. Small, Edward's Place	1,000 0
Beames & Nephew,* 16, Violet Row	1,000 0

* Accepted. [All of Cardiff.]

Eastleigh (Hants).—For the work of constructing the substructures of three steel bridges, and making and forming-up about 1,600ft. of road between Eastleigh and Bishopstoke, for the Southampton County Council. Mr. W. J. Taylor, county surveyor, The Castle, Winchester:—

F. Osman, Southampton	£4,449
Coston & Co., Southampton	4,033
F. W. Trimm, Eastleigh	3,996
J. C. Trueman, Swanley, Kent	3,749
B. Cooke & Co.,* London	3,730

* Accepted.

Llandudno.—For supply of 15in. cast-iron pipes, bends, valves, &c., and for the laying of same from Plas Dulyn, Llanbedr, in the county of Carnarvon, to Llican, in the county of Carnarvon, for the Llandudno Urban District Council. Mr. E. P. Stephenson, engineer and surveyor:—

R. Robinson & Son, Rochdale	£7,994 17 3
Hughes & Lancaster, Ruabon	7,552 19 9
J. Phœnix, Chester Street, Wrexham	6,654 6 6
W. Jowett, 4, Warrington Road, Prescot	6,211 7 9
Rowell & Sons, Chipping Norton	5,926 8 1
H. Roberts,* Hoarwithy, Ross	5,510 15 6

* Accepted.

London.—For the erection of a new school, Grange Hill Road, Greenwich, for the London School Board. Mr. T. J. Bailey, architect:—

Lathey Brothers	£28,647	McCormick & Sons	£26,708
F. & H. F. Higgs	28,532	J. Garrett & Son	26,642
J. Greenwood	28,147	G. E. Wallis & Sons	26,487
W. Johnson* & Co. Ltd.	27,992	J. Smith & Sons, Ltd.	26,297
W. H. Lorder & Son	27,888	Treasure & Son	25,996
L. H. & R. Roberts	27,812	J. Marsland & Sons	25,942
G. Munday & Sons	27,777	J. & G. Bowyer	25,878
W. Downs	27,301	Stimpson & Co.	25,440
E. Lawrence & Sons	27,017	J. & M. Patrick, London & Rochester*	24,142

* Recommended for acceptance.

London, E.—For the erection of the Hilda Road public elementary schools, Canning Town, E., for the West Ham School Board. Mr. William Jacques, architect, 2 Fencourt, E.C. Quantities by Messrs. R. L. Curtis and Sons:—

H. L. Holloway	£33,562	Holliday & Greenwood	£24,998
A. E. Symes	27,317	A. Reed	23,973
Munday & Son	26,287	Gregar & Son,* Stratford	23,923
G. Sharpe	26,119		
W. J. Maddison	25,578		

* Accepted subject to the approval of the Board of Education.

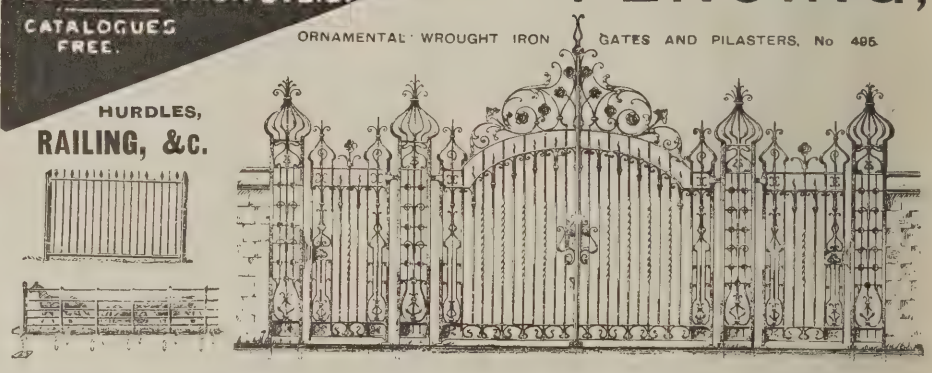
London, N.—For rebuilding 105 and 107 Upper Clapton Road, N., for Dr. W. B. Benjafield. Mr. Arthur Tighe, architect, 70 Finsbury Pavement, E.C.:—

Barrett & Power	£2,106	Ellis & Turner	£1,750
Snewin Brothers	1,959	Lawrence & Son	1,744
Osborn & Son	1,870	Thompson & Son*	1,599

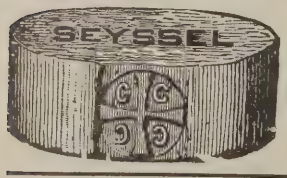
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Continued on p. xiv.

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TENDERS—*cont.*

London, S.E.—For the building of underground sanitary conveniences at Lee Green and Catford, for the Lewisham Borough Council:—

Lee Green.

E. R. Palmer, Wickham Road, Beckenham	£1,973
Doulton & Co., Lambeth	1,857
Barden & Head, Maidstone	1,735
G. Jennings, Ltd., Lambeth	1,770
Davis & Bennett, London	1,675
Finch & Co.,* Lambeth	1,573

Rushey Green.

E. R. Palmer	£2,198
Doulton & Co.	2,007
Barden & Head	1,895
G. Jennings, Ltd.	1,850
R. Harding & Sons, 75, Arodene Road, Brixton	1 785
Davis & Bennett	1,720
Finch & Co...*	1,689

* Accepted.

Newport (Mon).—For the construction of certain additions to Dock Road Brewery, Newport, Mon., for Messrs. Phillips & Sons, Ltd.:—

J. D. Parfitt, 17, Stow Park Avenue	£9,950
C. H. Reed, 1, Malpas Road	9,500
C. Jordan, Corporation Road	9,360
J. Hooper 45, Bridge Street	8,995
W. Jones & Son, Rutland Place	8,987
J. Jenkins, Clifton Road	8,897
C. A Hayes, Thomas Street, Bristol	8,820
F. Chown, St. Paul's, Bristol	8,800
D. W. Richards, Ltd., Marlborough Road	8,800
J. Charles, Shaftesbury Works	8,704
Leadbetor Brothers, Crindau, Newport	8,540
T. Lowe & Son, Carson Street, Burton-on-Trent	8,120
A. S. Morgan & Co., Ltd., Godfrey Road	7,990
W. Blackburn, Pentonville	7.987
Jarrett & Fisher, George Street	7,920
J. Linton & Co., Ltd.,* Commercial Buildings	7,870

* Accepted. [Rest of Newport.]

Studley (near Alcester).—For Studley water-supply works, for the Alcester Rural District Council. Messrs. Willcox & Raikes, engineers, 63, Temple Row, Birmingham:—

Contract No. 1—Pipes.

Biggs, Wall & Co., London	£1,924 18 11
Watson, Gow & Co., Glasgow	1,809 16 7
J. & R. Ritchie, Middlesbrough	1,768 11 8
Cochrane & Co., Dudley	1,754 19 7
J. & S. Roberts,* West Bromwich	1,710 2 2
A. J. Cloake, London	1,585 1 2

* Accepted.

Contract No 2—Pipelaying.

Reid Brothers, London	£2,602 0 0
G. Eastell, London	2,510 2 3
J. Barnes, Northfield	2,226 0 0
Johnson & Langley, Leicester	2,069 11 9
G. Huxley, Astwood Bank	2,037 0 0
J. Mackey, Smethwick	1,972 1 3
J. G. Fincher, Stratford-on-Avon	1,900 0 0
T. Rowland, Northwick	1,700 0 0
Cruwys & Hobrough, Birmingham	1,650 14 9
G. Law, Kidderminster	1,632 0 0
J. H. Vickers, Nottingham	1,577 0 0
S. Wood, Bristol	1,562 13 3
M. Thompson, Briton Ferry	1,450 11 0
Fitzmaurice & Co., Birmingham	1,437 0 0
W. Jowett, Prescot	1,427 4 10
H. Law, Erdington	1,400 0 0
T. Vale, Stourport	1,378 6 6
T. Jackson, Chorley	1,311 14 4
C. J. Nevitt,* Stafford	1,250 9 0

* Accepted.

Swansea.—For the erection of Pentrechwyth School, for the Swansea Urban District School Board:—

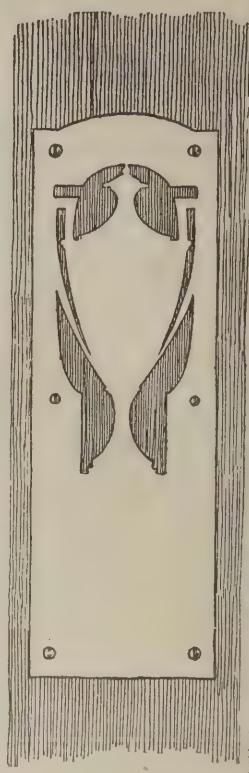
J. & F. Weaver, Manselton	£3,900 0 0
J. & T. Jones, Eaton Grove	3,900 0 0
J. Williams, 33, Brynmor Crescent	3,840 0 0
J. Marles & Son, Richardson Street	3,819 0 0
H. Billings, Oystermouth Road	3,763 0 0
Bennett Brothers, Heathfield Yard	3,680 0 0
Walters & Johns, Morriston	3,650 0 0
Lloyd Brothers, Argyle Street Yard	3,560 0 0
D. Jenkins, 89, Lower Oxford Street	3,410 0 0
T. Richards, Northampton Yard	3,250 0 0
G. Crocker, Danygraig	2,787 9 0
D. W. Rosser,* Llansamlet	2,230 10 0

* Accepted.

Walsall.—For the erection of a junior mixed school and cookery centre at Elmore Green Bloxwich, for the Walsall School Board. Mr. H. E. Lavender, M.S.A., architect, Bridge Street, Walsall:—

J. & F. Wooton, Bloxwich	4,705 0 0
Williams & Oakley, Wolverhampton	4,450 10 0
W. Hopkins, Birmingham	4,400 0 0
J Herbert, Wolverhampton	4,389 0 0
F. L. Jones, Wolverhampton	4,376 0 0
C. Griffiths, Lye	4,300 0 0
T. Tildesley, Willenhall	4,269 0 0
W. Wistance, Walsall	4,245 0 0
Walton Brothers, Smethwick	4,139 0 0
J. Dallow, West Bromwich	4,115 0 0
M. A. Lynex, Walsall	4,098 0 0
D. Roberts, Handsworth	4,045 0 0
H. Gibbs, King's Heath	3,993 0 0
J. Mallin, West Bromwich	3,990 0 0
S. Wooton,* Bloxwich	3,950 0 0

* Accepted.

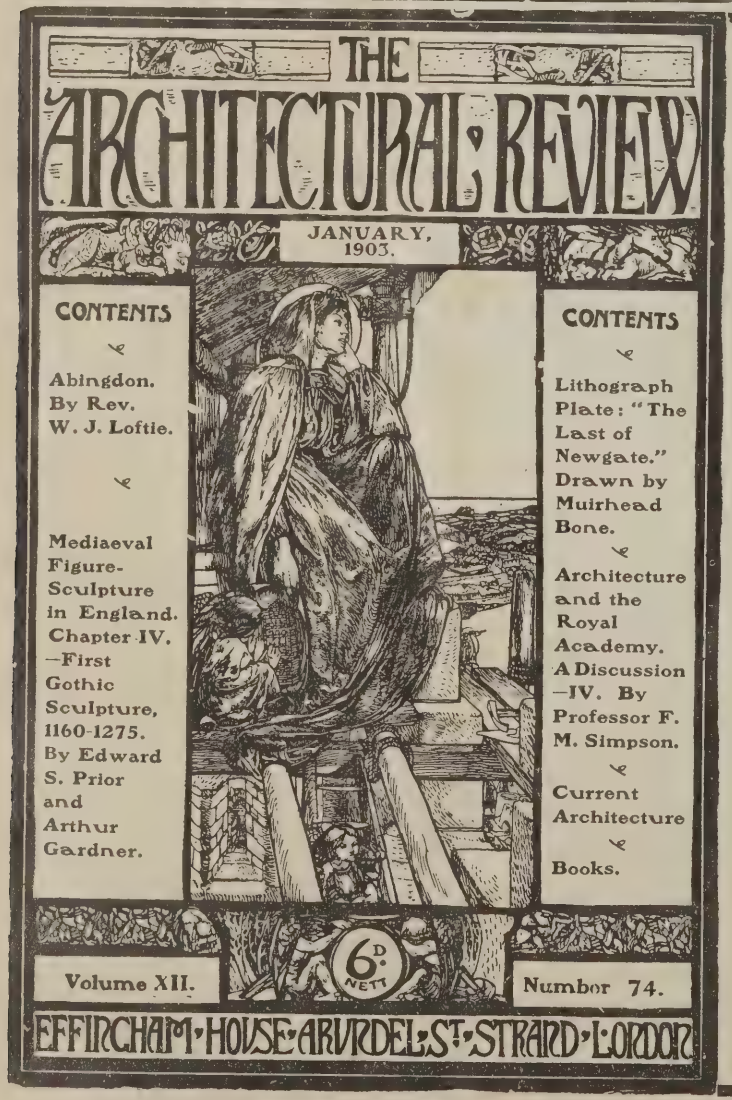


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JAN. 7, 1903. No. 413.

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NOTICE:—*The offices of this journal have been temporarily removed from Effingham House, Arundel Street, to 9, East Harding Street, E.C. (next to Messrs. Eyre & Spottiswoode, the King's Printers), to which new address all communications should be sent.*

An Architectural Causerie.

The Blocked Column.

IT has always been a wonder to us why architects should be so fond of the blocked column, for to our mind it is an ugly feature. It has neither the solidity of the pier nor the grace of the column, and always produces a lumpy effect. The lines of the column are quite spoiled by the clumsy-looking blocks, strung like so many chunks on a rod. We can call to mind a score of buildings which are marred by this feature. Without doubt it has been used by architects of great eminence, but that does not change its inherent defects. And not only is it ugly, but the additional cost of the stone is considerable. We should like to see it altogether abandoned, and, in place, either a solid-looking pier or a column with its graceful lines uninterrupted from base to cap. But we fear the blocked column is being increasingly used rather than set aside, probably more for ill-considered fashion than deliberate choice. Ill-considered fashion is not a thing to foster.

Gateway, Galle Fort, Ceylon.

AT every station of importance which they held on the island of Ceylon the Dutch built a fort, and the gateways to these are very characteristic examples of their architecture. Like that of Galle Fort, illustrated on this page, they are usually surmounted by the state coat-of-arms or the monogram of the company and the date of the fort, and there was generally a belfry on one of the walls. There used to be two or three fine gateways to Colombo Fort, but these were demolished about thirty years ago. This one at Galle is therefore especially interesting. It also was threatened with destruction some years ago, but for the present it is safe. Galle, too, has a most interesting Dutch church, with the best examples of the Dutch gable on the island.



GATEWAY, GALLE FORT, CEYLON.

Admirable Satire.

A LETTER written by an "Indignant Archæologist" appeared in the "Morning Post" last Wednesday, and it is such an excellent piece of satire that we give it in full: "The destruction of the few relics of Old London is ruthlessly carried on. I was greatly shocked last night to observe that the beautiful stretch of mediæval wood pavement between University College and the North London Hospital is being torn up by sacrilegious hands and is about to be replaced by freshly-shaped blocks of foreign origin. The rugged surface of this fine old roadway has for many years been the delight of every eye not wholly debased by those utilitarian prejudices which the Viceroy of India, in his eloquent speech at Delhi, so gravely deplored. I cannot recall the time when even the cabmen, who are not usually regarded as æsthetes, would not rather drive half a mile round than run the risk of injuring this noble relic of antiquity, nor when cyclists have not reverently alighted on arriving at its margin. I am sure that many will agree with me in holding that the destruction of this remarkable example of ancient road-making for merely practical purposes affords a melancholy instance of the danger of entrusting the care of our streets and buildings to popularly-elected authorities. If it is not already too late, I would venture to suggest that at least a small section of this old pavement should be preserved and screened from the weather, as has been done with similar relics at Silchester and elsewhere. I enclose my card, and will gladly subscribe to any fund that may be raised in order to carry out the object which I have suggested." There is a world of meaning in this mock eulogy.



THE BISHOP'S PALACE, WELLS: WEST FRONT. [*Photo: T. W. Philips, Wells.*

THE BISHOP'S PALACE, WELLS.

By E. H. PITCAIRN.

AN American after a short stay at Wells some years ago spoke of the Bishop's House as "a palace which makes the dream of a poet seem prosaic." I could quickly prove how true these words are, but for the moment I must ignore the romance of this beautiful old city and confine myself to solid facts.

Wells is our best example of a great principle conspicuous by its absence in much of our modern work. I mean *character*, without which there can be no true architecture. Natural environment and a sense of truth in the makers of Wells have combined to produce beautiful exteriors which at once express the useful purpose for which they are intended. Nowhere is there any straining after effect, for everything has a *raison d'etre*. This gives a sense of repose to the general effect, never felt where there is unreal ornamentation, nor will any artistic student fail to notice the wonderful way in which necessary alterations have been carried out.

The picturesque little town is set in the midst of a rich valley watered by sparkling streams and sheltered by the rocky Mendip Hills and the lofty peak of Glastonbury Tor. The most picturesque approach to the town is from Shepton Beauchamp, for a little hill about a quarter of a mile on the Shepton Mallet Road gives a view of a group of buildings which Professor Freeman considered "as an indivisible whole, has no rival either in our own Island or beyond the sea," and at least forty experts to my own knowledge consider Wells to possess the best examples in Europe of a secular church with its subordinate buildings. The glory of Wells lies in the exquisite grouping of the ancient houses clustering round the cathedral, none of which are incongruous, isolated or overcrowded, and if you go to Wells you will note as you come across here and there an old specimen of domestic architecture, how every gable, window and turret falls in with the style of the more important buildings, helping to produce one satisfying whole. Probably I shall be told I am digressing, for my subject is the Bishop's Palace, but it must not be forgotten that although this stately house of our mediæval bishops, being situated on an islet girdled by a moat, is in a sense apart, it is inseparably interwoven with the series which (to quote Mr. Freeman again) "goes on uninterruptedly along that unique bridge connecting the church with the Close."

Tradition tells us that missionary priests were settled at Wells in the newly-conquered Saxon land as far back as the eighth century, and we have the same fairly good authority for fixing the date of the founding of the See to the year 909, but none of the present buildings go back further than the close of the Norman period. There is, however, no other place where so many ancient dwellings are preserved and applied to their original use. An attempt was made in the eleventh and twelfth centuries to establish the monastery system at Wells, but the struggle between the bishop and the monks of Glastonbury resulted in the present secular foundation, although the canons, like the monks, had originally a common dormitory and refectory.

The monastic buildings were destroyed before the present ones were begun, and the quarrel with the monks at Glastonbury resulted in the acquisition of the manors of Winscombe, Sucklechurch, Blackford and Cranmore, being ceded to Bishop Jocelin and his successors for ever. It was in the thirteenth century that the great creative work was accomplished, and of four chief benefactors Bishop Jocelin was the most striking example of the influence of a single individual who really loves the place where his lot is cast. Son of the soil, he passed through every grade of office, and was eventually unanimously elected bishop by the chapter of Bath and Wells, the ancient records of which bear witness to his noble character and gifts. A great builder, he was as famous for his generosity as for his love of building. He literally gave, himself, and all that he had, for the good of his native town, from which he was hardly ever absent, if the five years are excepted during which he was so cruelly banished from the country by the king. But this truly great man turned even this exile to good account, by studying the best foreign work and "marking down what he thought most interesting"; while he thought out and matured his magnificent plans for the rebuilding of the cathedral, cloister and palace.

Jocelin was elected bishop in 1206, and a year later the king gave him two charters. The one, on September 16th, was a "permission" to impark land on the south side of Wells and stock it with wild deer from Cheddar; the other legalized the closing of two roads, divesting a right of way, in order to make the demesne more private. No one can study the architecture of the palace, which is one of the oldest and finest of England's palatial houses, without gaining an insight into the state of life in bygone ages, for stone and beam and bottomless well speak eloquently of events in the past. The little city itself derives its name from the spring in the Bishop's Garden, called after the Holy Wells of St. Andrew and given by Bishop Bekynton to water and beautify the town. We are also reminded of the days when one of the most beautiful gardens in the world was a wild forest where the hunting of wolves was no mere sport. In those days it was necessary that



THE PALACE GATEHOUSE. [*Photo: T. W. Philips, Wells.*

even bishops' castles should be capable of sustaining a siege.

The palace precincts are entered by a stately gatehouse. The house, like most mediæval episcopal residences, is built on the south side of the cathedral, in order that it may get as much sun as possible. The records in the Liber Albus,* written towards the end of the fourteenth century, tell us that the vaulted entrance and reception-rooms, also the great gallery on the first floor, were built during Bishop Jocelin's episcopate, *e.g.*, 1205–44.

In 1285 Bishop Robert Burnell had leave to put up the embattled wall. He also built the beautiful banqueting-hall at his own expense. Bishop Ralph in 1341 built the gatehouses and enlarged the fortifications, enclosing the palace with a stone wall, embattled and crenellated. Bishop Ralph also cut the surrounding moat, which is filled from a natural fountain that falls in white cascades into the moat. The illustration on the opposite page shows the west front of Bishop Jocelin's house, two sides of which must originally have had cloisters leading into the present entrance, for the foundations of the wall of a cloister have been found. The vaulted basement, with its groined roof and upper chamber, is a characteristic feature of thirteenth-century castles, and the tracery of the windows, the slender pillars of marble, and corbels make this lower storey a beautiful specimen of Early English work. It is divided lengthwise at about a third of its width, and the narrow outer part forms the entrance hall. The gallery above is 80ft. in length, and has also a groined roof and richly-carved doors and wainscoting. I do not know whether it is ever shown to strangers, but if you are fortunate enough to see it, the portraits of Wolsey, Godwin, Laud and Ken suggest many interesting memories. In the first-named bishop's time (Lord Arthur Hervey) it made a delightfully long drawing-room. The crypt windows on the east side are plain single lancets well splayed. Those on the west side are of two lights trefoil-headed. This hall is now used as a dining-room, and a table large enough for twenty persons looks quite small. The porch is modern, and the staircase also, although the work is so admirable that only close inspection would make even an experienced eye imagine it was comparatively new. The upper storey is divided by a solid wall separating one-third as a long gallery. Here the roof, ceilings and fireplaces are modern.

The side windows are most beautiful. On this floor they have each "two lights, and are trefoil-headed with a foil over them" (I quote Mr. Parker), "and each has a very elegant inner circle trefoiled and richly moulded with blue shafts in the jambs; capitals of stiff leaf foliage, and moulded bases." The end windows are very grand, particularly the one at the north end. It is of four lights divided into two pairs, each with a quatrefoil at the head, and in the gable over the centre of these two subdivisions is another large quatrefoil, now hidden by a modern ceiling. The arches are cuspated and the points of the cusps ornamented with sculptured foliage. The jambs are also enriched with shafts having capitals of sculptured foliage, and the hood mould over the arches is terminated by heads. The window at the south end is equally fine, but less elaborate.

No one will be surprised that it was considered one of the finest halls in Europe.

The porch is modern but the doorway is of the fifteenth century.

Most of the partitions, the oriel window overlooking the moat and St. Andrew's Well were also added by Bishop John Clerk, who presided over the See from 1523 to 1540. One tower with a stair turret is Bishop Clerk's work in the reign of Henry VIII.

The original palace of Bishop Jocelin had only two storeys, and the present dormer windows of the third storey were admirably designed in 1840 by Mr. Ferry. One doorway leading from a staircase to the present palace is Elizabethan. There are two perfect stair turrets of Bishop Jocelin's—one at the south-west corner of the present chapel and another almost immediately opposite.

The Great Hall and the present chapel were built by Bishop Burnell between 1274 and 1292. The former is in ruins; excellent architectural drawings of it are given in vol. 2 of Pugin's "Gothic Architecture." In the chapel the materials of Bishop Jocelin's chapel have evidently been used, but the fine-groined vault and delicate tracery of the windows, also the bell turret, are Bishop Burnell's work, although a large gargoyle of Jocelin's forms the head of a turret staircase. The greater part is Early Decorated.

Bishop Burnell's beautiful hall, of which only the north wall, west end and turrets remain, was originally lighted by nine lofty windows. It was 120ft. long, 70ft. wide, and at each angle were octagonal turrets with staircases. The last great event which took place there before the palace was bereft of its old splendour, dismantled and sold to Cornelius Burgess, was the judicial murder of the Abbot of Glastonbury, Richard Whiting, on November 14th, 1539, by order of Cromwell—this hero preferring to sacrifice his life rather than betray his trust, and so was executed on the top of the tor in 1539.

There is much else to be said of such a place as the Bishop's Palace at Wells, its associations and surroundings, but space forbids. Kingly visits, stately pageants, and poetic legends come to mind, and we remember also how that shy man, Bishop Ken (who composed the evening hymn as he walked up and down the terrace in the palace garden) dared to rebuke the king, and refused to take Nell Gwynne beneath his roof, rather than disobey his conscience.

Bishop Ken was one of those who accompanied the Duke of Monmouth to the scaffold.



DRAWBRIDGE AND LODGE, BISHOP'S PALACE, WELLS. [*Photo: T. W. Philips, Wells.*

* The wording of these written records in the Liber Albus is as follows:—"Bishop Joceline 1205 to 1214 made chapels with chambers of noble construction at Wells and at Woky. Robert Burnell (Bp) 1274 to 1292 at his own expense built the Episcopal Hall at Wells. Radulphus de Salopia 1329 to 1363 (Bishop) enclosed the Episcopal Palace at Wells with a stone wall embattled and crenellated and with a ditch."



BISHOP'S PALACE AND MOAT, WELLS. [*Photo: T. W. Phillips, Wells.*

RECENT CHURCH RESTORATIONS.

Hereford Cathedral.

THE west front of Hereford Cathedral is to be still further "improved" and "renewed." The dean has issued an appeal for a sum of £5,000 to carry out the design of Mr. J. Oldrid Scott providing for a new main entrance to the nave. It is to have a rich double doorway. The dean and chapter have voted £2,250 out of their scanty funds for the purpose, besides putting in a new west window as a memorial to Queen Victoria at a cost of £2,100. When the façade of the nave has been completed the western portions of the north and south aisles are to be dealt with, involving an outlay of another £5,000. In order to appreciate the necessity for the work which the dean and chapter are desirous to carry out at Hereford it must be remembered that after the fall of the great western tower in 1786 Wyatt was called in to put up a new west front. Not only did he construct a façade, which served as a model for the "churchwarden Gothic" style that came into fashion early in the nineteenth century, but he altered the character and proportions of the cathedral and committed many acts of vandalism. Previous to the fall of the tower the west front of Hereford was unique, with its turrets and spires and bold Norman archway and arcading. There was also a spire to the central tower, and the whole effect was more imposing than now. If the authorities propose to obliterate the whole of Wyatt's mischievous work they ought to be liberally supplied with funds.

Salisbury Cathedral.

Salisbury Cathedral is distinguished for its proud possession of the highest spire (408ft.) in the United Kingdom. It was added about 1330, but as it did not form part of the original design and was not sufficiently provided for it began to bend within a hundred years of its erection and it now leans 27½in. towards the south. It is quite safe, but shares the danger of being struck by lightning. Thus it was that Messrs. Frankland, Phillips & Co. were called in last year by Sir A. Blomfield & Sons, the consulting architects of the cathedral, to make a test and survey of the old lightning conductors; and they have since removed the old conductor and substituted their own system of continuous copper tapes.

About 4,000ft. of high-conductivity copper have been used. The spire has seven iron bands fixed to strengthen it, and a bandage around the tower itself, just below the eight doors, which Francis Price said (in his "Observations on Salisbury Cathedral") was "perhaps the best piece of smith's work as also the most excellent of anything in Europe of its age."

These old iron bands are now being replaced by copper. The vane was removed for the purpose of renovation and replaced on December 5th last. Instead of the old arrangement of wheels it now works on a bearing of twenty-four 1in. steel balls. Its weight is nearly 170lb., its breadth 7ft. and its height just over 4ft.

Ferns Cathedral.

Last year the cathedral of Ferns underwent a thorough restoration by Mr. Webster, contractor, of Gorey, under the direction of the architect, Mr. Fuller. The original structure, erected about the end of the thirteenth or beginning of the fourteenth century, was evidently one of imposing proportions and great beauty, with nave, aisles, choir and chancel. In the fifteenth and sixteenth centuries the cathedral suffered much; Bishop Ram found it in ruins, the nave and centre aisle alone being fitted for divine service. This nave, somewhat enlarged, seems to have undergone "restorations" in which every trace of the original building was gradually obliterated, the tracery of the windows ruthlessly broken, the beautiful clustered pillars which supported the arches between the nave and the aisles built up into the walls and plastered over, so that it was generally thought that no portion of the present building belonged to the original structure. The present restoration has been undertaken in a different spirit. The ancient pillars have been exposed and repaired, and other portions of the original cathedral which were brought to light preserved with care. A new chancel arch has been erected and the prebéndal and choir stalls placed within the chancel; the old ceiling has been removed and the roof lined with pitch-pine; new seats have been provided, the floor tiled throughout, a new system of heating by hot water introduced, and many other improvements effected.

St. Cuthbert's, Thetford.

About a year ago it was decided to build a new north aisle to St. Cuthbert's Church, Thetford, Norfolk. Considerable care had to be exercised in planning the aisle. Another important work was the removal of the old roof and flat plaster ceiling over the nave. When this was being carried out the timbers were found to be in an advanced state of decay. During the progress of the work some of the beams fell and demolished what remained of the east gable. The new north aisle corresponds architecturally with the existing south aisle, and is divided from the nave by an arcade consisting of four bays, with stone shafts, bases, caps and arches; there are four new clearstory windows in the north wall of the nave over the arcade. Every fragment of old stonework has been re-used, and the greatest care was taken that none was lost or destroyed. The old windows have also been re-used, while some of the old carved stones have been re-fixed. The roof of the new aisle has been carried out in pitch-pine, covered with boarding and lead. Over the nave a new waggon-headed panelled roof has been constructed, divided into four bays, with moulded principals, and having carved oak bosses at the intersections of the panelled mouldings. The jambs of what should have been the chancel arch, which

were of very poor modern plasterwork, have been replaced by new stone jambs, and a moulded stone arch has been constructed. The north aisle and nave have been laid with solid block pitch-pine flooring. The contract for the north aisle was placed in the hands of Mr. R. Chapman, of Hanworth; the nave, roof and other work in the nave was done by Mr. S. Holden, of Thetford; whilst the whole of the stonework for the new aisle and chancel arch was executed by Messrs. R. Hall & Son, of Thetford; the glazing by Mr. Thomas Horth, of Norwich; and the plastering by Mr. W. G. Crotch, of Norwich. The hot-water heating, on the low-pressure system, has been carried out by Messrs. Barnes & Pye, of Norwich. All the contracts have been executed under the superintendence of Mr. Arthur J. Lacey, architect and diocesan surveyor.

Claverley Church.

All Saints' Church, Claverley, six miles from Bridgnorth, has been restored in accordance with the plans of Mr. W. Wood Bethell, whose estimate was £4,500. The work included the necessary repairs to roofs and walls, the lowering of the floor to its original level and so unearthing the bases of the Norman columns, the removal of the galleries and thereby restoring the fine proportions of the nave. The plaster and whitewash have been taken from the walls, and this led to the discovery of some rare examples of Norman mural painting. They are of unique interest on account of their exceptionally early date (1170) and the principal subject represented—an incident in the Battle of Senlac or Hastings. The other paintings in the spandrels of the arcade and elsewhere are of a more ordinary character—incidents in the lives of saints, the torments of hell, and figures of the Seraphim, &c. The borderings throughout are of a very elaborate character, red, yellow, and pink being the colours principally used.

St. Peter's Church, Lowestoft,

is proposed to be restored under the superintendence of Mr. E. P. Warren, who estimates the cost at £3,000.

St. Mary's, Haverfordwest.

The work of arranging the preliminaries for raising the funds needed to restore the nave of this church, one of the finest parish churches in Wales, has been commenced.

Penn Parish Church, Bucks.

The work of restoring the roof and tower of this historically-interesting church is to be taken in hand at once. Very extensive investigation has been made into the actual state of the fabric, and it is estimated that a considerable sum of money will have to be expended to satisfactorily carry out the work essential to render the venerable tower secure and the roof safe. The ecclesiastical architects consulted recommended, in connection with the latter work, the removal of the quaint plaster ceiling, which they regarded as being unorthodox, but the vicar and the parishioners do not endorse the professional opinion. On the contrary, the vicar looks on the ceiling—which is in an excellent state of preservation—as being a unique feature, and there is no doubt that it is an object both of curiosity and admiration to the hundreds who visit the historic church in the course of each year. The ceiling will, therefore, not be tampered with in any way.

Morvah Church.

The little village of Morvah is about six miles from Penzance. For nearly 500 years a church has stood here, but for some years the present building has been falling into decay, until a complete restoration became a necessity. The work was entrusted to Messrs. Burnell & Walters, of Penzance. There is a new roof with painted slate laid in putty and neatly boarded inside—an admirable arrangement in such a bleak and stormy situation; new stained-glass windows, with polyphant stone frames, have been fitted throughout; the seats and new altar table are of teak, and have a most substantial appearance; the floor is of blocked wood, and there is a new American organ. The rehanging of the bells is postponed for the time being.

Hazelwood Church.

The parish church of Hazelwood has been restored by Messrs. Naylor & Sale, the well-known firm of church architects, Derby, the contract having been let to Messrs. J. Walker & Sons, of Wirksworth. The church was only built about fifty years ago, with schools and vicarage adjoining, but last year a fire broke out, caused by a rafter and plate of the nave roof being too close to the flue used for the furnace. The building was practically doomed, as the dry pitch-pine of the roof burned most rapidly. The work of restoration has been undertaken much on the old lines, though, where features such as the font, pulpit, chancel arch, the organ and seats were totally destroyed, the architects have designed the necessary new work in a style somewhat advanced of the original, and with very good effect. The chancel roof, though badly charred, was sound, and has been repaired and left in position, the interior being boarded on the underside, thus forming a wagon vault, aiding the sound and immensely improving the appearance of the chancel. Practically the whole of the monuments have had to be reproduced by Mr. R. G. Lomas, of Derby. The new stained glass is being supplied from the studios of Mr. Kempe, Messrs. Burlison & Grylls and Messrs. Clayton & Bell, all London firms. The pulpit and font have been executed by Mr. R. G. Lomas, of Derby; the ironwork and lighting by Mr. E. Haslam, Derby; and the heating by Messrs. Jerram & Co., Derby. The organ is by Messrs. Lloyd, of Nottingham. The total cost of the restoration has been £2,000.

Wilby Church.

Surprise is often expressed at the unusually large size of some Norfolk churches compared with the small population of the parishes; but the ample dimensions of Wilby Church have been of the utmost practical use during the restoration, as they have allowed Divine service to be continued without interruption. The nave was repaired at the cost of £480 under the direction of Mr. William Weir, one of the architects to the Society for the Protection of Ancient Buildings.

It was the expressed wish of those who have been most active in the restoration work that no alteration or modern improvement should obliterate the old features of Wilby Church which link it with the annals of England from the fourteenth century downwards. While these have been maintained other features still older have been brought to light: the fresco of St. Christopher again confronts those who enter by the south porch; the incomplete founder's tomb and the rood-loft staircase have been exposed; the one original Early English nave window, which escaped the attention of the fifteenth-century restorer, who superseded the other windows by the Perpendicular fashion of the day, needed little repair; the Early Tudor benches, introduced after the fire of 1633, but of an earlier period, have been repaired and re-instated in their old place; the genuine Caroline pulpit and desks, with the royal arms of Charles the First, the alms-box of 1638, and the then newly-ordered altar-rails of Archbishop Laud, may still be seen. The eighteenth century, not less than its predecessors, contributed its share to the improvement of the church, paving the sanctuary floor with additional marble slabs, and making a distinct effort to preserve the fabric by a reconstructed nave roof, the beams and an additional external buttress: these have sufficed to maintain the fabric up to the time of the present restoration. In the earlier part of the nineteenth century considerable improvement was made in the church, which at least has lessened the expense of the recent restoration. Thus each of the last six centuries has left traces of its work and influence in this parish church.



CRYPT, BISHOP'S PALACE, WELLS. [*Photo: T. W. Philips, Wells.*

Blackpool Pier.—Visitors to Blackpool next season will be surprised at the change the North Pier has undergone. The scheme provides more convenient and improved entrances, with a pavilion or shelter at the east end. The architects, Messrs. Maxwell & Tuke, of Manchester, have adopted a free adaptation of Eastern architecture. The central entrance has two buildings connected with a covered archway of 13ft. span, the whole being surmounted by two cupolas and a clock tower. From here will be a slope of 1 in 16 down to the present deck level of the pier promenade, which is 50ft. wide, although for a considerable distance the deck will be widened out to 160ft. Upon this deck, 40ft. from the promenade, will be erected the pavilion or shelter, 80ft. wide and 105ft. long, shops running along the two sides. It is expected that the works will be completed in time to open the pier to the public at Easter.

Views and Reviews.

The Architecture of Greece and Rome.

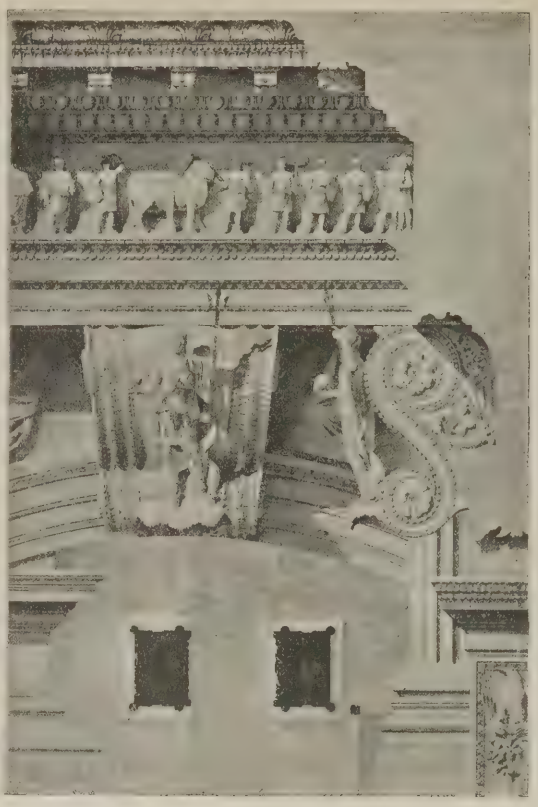
For many years there has been an ever-increasing flow of literature relating to classical archæology based chiefly on the results of a systematic and thorough exploration of ancient sites, and new light has been thrown on questions pertaining to the historical development of classic architecture.

It was, therefore, a happy idea of the late W. J. Anderson's to attempt an epitome for students whose range of observation is necessarily limited. The opening chapters of the book are written in a pleasing literary style and show a grasp of the subject which makes us regret that the author did not live to mature his work. Fortunately, another teacher, Mr. Phené Spiers, was well qualified to foster it, and by him it has been rescued from oblivion. The illustrations have been selected with suitable discrimination, and are generally worthy of all praise, but we may perhaps be permitted to suggest that the book would be still more useful with a few maps and additional plans of sites. Thus a sketch plan of the fortress of Mycenæ in relation to the "bee-hive" tombs outside, and of the whole fortress of Tiryns in relation to the palace, would assist the description considerably. By the way, Dörpfeld long ago explained that the galleries in the walls of Tiryns could no longer be assumed to have served a purpose of fortifications: they were simply storage cellars, as in similar walls at Carthage. They also remind us of the range of magazines opening out of the west corridor of the palace of Knossos in Crete—a discovery that appears to have an important bearing on Mycenæan culture, though not, we think, mentioned in the book. After tracing the history of Greek architecture as revealed by the monuments of the primitive periods, the sturdy Doric remains of Sicily and Magna Græcia receive attention and are brought home to the student by a series of remarkably clear photographs of the best preserved examples. Of these the unfinished temple at Segesta is perhaps the most interesting. The peristyle was apparently the only part built, and the columns are merely blocked out for the fluting to be done *in situ*.

The chapter on the contemporary work in Asia Minor opens with a brief notice of the racial, historic and social relationship of the Ionian Greeks, and the bearing of Greek mythology on the arrangement of temples is noticed, though but little is known of this. The most noteworthy example of the period was probably the archaic temple of Diana and Ephesus, and this is the basis for some interesting remarks on the development of the Ionic cap. A very careful drawing by Mr. Cromar Watt of the restored column of this temple is given.



THE SOUTH PERISTYLE OF THE PARTHENON AT ATHENS, LOOKING EAST.



KEYSTONE OF THE ARCH OF TITUS AT ROME.

In the succeeding chapters on the culmination in Athens, Attica and the Peloponnesos the result of that coalescence of the Doric and Ionic types so characteristic of Athenian work is placed clearly before the reader. Some conjectural restorations are given, but these, we regret to say, are not of sufficient merit to justify their perpetuation. They include a restoration by Professor Cockerell of the temple of Apollo at Bassæ, but surely a curved ceiling with a hole in it is an injustice to the reputation of the architect of the Parthenon. If a stone ceiling is necessary to fulfil the demands of Pausanias there is no statical reason why it should not be flat, resting on beams laid transversely; or if light is wanted, why not make the cellar entirely open to the sky, as at the Didymæan temple? We should then understand better the small shrine at the end, for the "Sun God" and the beauties of the sculptured frieze inside the cella would be revealed. The Alexandrine period next claims attention: in it we have a revival of architectural grandeur in Asia Minor in which the qualities of the magnificent and ornate are conspicuous. The sites of this period have been most prolific, and including as they did some of the "Seven Wonders of the World," which have been described in some detail by contemporary writers, it is but natural that conjectural restorations should be numerous. One of these, by Dr. Murray, showing the later temple of Diana at Ephesus, is given in this book; and although we are told that it has been generally accepted by archæologists, we may perhaps be permitted to say that we prefer, on artistic grounds, the idea of a sculptural podium in the manner of the Pergamum altar. Such a basement would, we think, modify the overpowering effect of the pediment as shown in the restoration, and the foundation piers of the front row of columns would not seem as if they had been exposed by cutting away the stylobate around them and afterwards cased with sculptured slabs. At the temple of Apollo Didymæus, the largest in Asia Minor, and of which a conjectural plan and some details are given, the platform on which the temple stood appears to have been the same height as that at Ephesus. The latest researches show that it consisted of seven high steps, but to form an approach the steps were subdivided into thirteen, extending over the five central inter-columniations. The date of this temple, it may be noted, is about 170 years later than the assumed date given in the book, according to an inscription which shows that the building operations were in full force in the middle of the second century B.C.

After a running commentary on Greek secular work, a brief notice of Etruscan architecture prepares the way for a survey of the mighty achievements of the great Roman Empire. This subject is so vast that only an expert like Mr. Phené Spiers would venture to extract the essence to occupy so small a space. This part of the book is certainly the most stimulating and suggestive. The illustrations are excellent, and show at a glance how completely architecture had been emancipated from the earlier traditional types.

Temples, basilicas, palaces, fora, theatres, amphitheatres, baths, colonnaded streets, gateways, triumphal arches, aqueducts, bridges and tombs—all pass before us in wondrous if not bewildering succession. The private houses of Pompeii and their decoration are not forgotten, but form the closing scene. We reproduce some of the illustrations, and regret that we cannot linger over this section of the book. We may, however, remind the student, in the words of the late Dr. Middleton, that "the Romans were the most able of engineers, and were remarkably skilful in contriving and planning so as to fulfil in the most complete way all the practical requirements of their particular buildings. This purely utilitarian spirit led naturally and easily to the development of a new style, which had at least that beauty which fitness is supposed to bring with it, and frequently possessed, even if it were by accident, much harmony of proportion and grandeur of effect from the vastness of its mass." This, then, is the final lesson of the book. To be natural may not be genius, but it makes genius amiable in the arts. If a man has not this quality he will never find it, for when it is sought it is gone.

JOHN A. MARSHALL.

"The Architecture of Greece and Rome," by the late William J. Anderson and R. Phené Spiers, F.S.A. London: B. T. Batsford, 94, High Holborn. Price 18s. nett.

Bermondsey Housing Competition.—In his report on the designs submitted in this competition Mr. John Slater says: "I cannot refrain from calling attention to the design No. 22, which, as far as the actual planning of the tenements is concerned, is one of the very best that has ever come under my notice, but I have been unable to award any premium to this design as the buildings are placed too close together and do not comply with the requirements of the London County Council." This design was by Mr. Robert Angell, of Garrick House, Adelphi, W.C.

INDIA SPOILED BY EUROPE.

Lord Curzon's Address on Art and Handicraft.

WHEN opening the Exhibition of Indian Art at Delhi on December 30th Lord Curzon delivered the following address:—

Since I have been in India I have made a careful study of the arts, industries and handicrafts of the country, and have lamented their progressive deterioration and decline. When it was settled to hold the present gathering at Delhi, it struck me that here was the long-sought chance to do something to resuscitate the threatened handicrafts, to show the world of what India was capable, and possibly to arrest the process of decay. I appointed Dr. Watt, and he, with Mr. Percy Brown, his assistant, travelled thousands of miles seeing artisans and selecting specimens. Three conditions were rigidly laid down. First, that the exhibition should be purely one of arts; secondly, that it should contain nothing European, but only work showing the ideas, the traditions and the beliefs of the people of India; thirdly, that it should contain only the best—everything rare and beautiful in Indian art. My object has been to encourage and to revive good work, not to satisfy the wants of a thinly-lined purse. This is not a bazaar but an exhibition, but we have added something much more important. Being conscious that taste was declining, and that many of the modern models were debased and bad, we have endeavoured to set up alongside the products of the present standards samples of the past. This is the meaning of the loan collection which has a special hall, where you will see many beautiful specimens of old Indian art-ware lent by the generosity of Indian chiefs and connoisseurs, some coming from our own Indian museums and some from the unrivalled collection of the South Kensington Museum. Many of these objects are beautiful in themselves, but we hope that the Indian workmen here and also the patrons who employ them will study them, not merely as objects of antiquarian or artistic interest, but as supplying them with fresh, or rather resuscitated, ideas which may be useful in inspiring their own work in the future. It may be laid down as a truism that Indian art can never be revived by borrowing foreign ideas but only by fidelity to its own.

I may be asked what the object of this exhibition is, and what good I expect to result from it. I will answer in a very few words. So far as the decline of Indian arts represents the ascendancy of commercialism, the superiority of steam power to hand power, the triumph of the test of utility over that of taste, then I have not much hope.

We are witnessing in India only one aspect of a process which is going on throughout the world, that long ago extinguished the old manual industries of Great Britain, and is rapidly extinguishing those of China and Japan. Nothing can stop it. The power-loom will drive out the hand-loom and the factory will get the better of the workshop just as surely as the steam-car is superseding the horsed carriage and the hand-pulled punkah is being replaced by the electric fan.

All that is inevitable, and in an age which wants things cheap and does not mind their being ugly, which cares a good deal for comfort and not much for beauty, which is never happy unless when asserting its own models and traditions and running about in quest of something foreign or strange, we may be certain that a great many old arts and handicrafts are doomed.

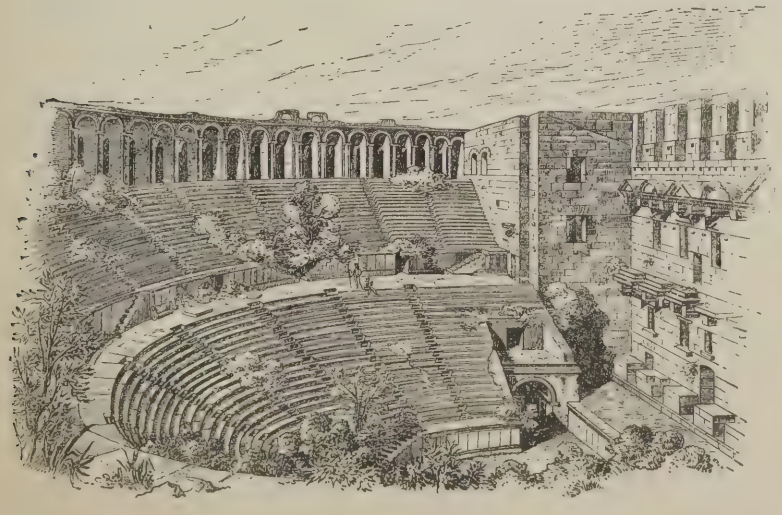
There is another symptom which to my mind is even more ominous. I am one of those, as I said, who believe that no national art is capable of continued existence unless it satisfies the ideals and expresses the wants of the nation which produced it. No art can be kept alive by globe-trotters or curio-hunters alone. If it has got to that point it becomes a mere mechanical reproduction of a certain fashionable pattern, and when the fashion changes and it ceases to be popular it dies.

If Indian art, therefore, is to continue to flourish or is to be revived, that can only be if the Indian chiefs and aristocracy and people of culture and high degree undertake to patronize it. As long as they prefer to fill their palaces with flaming Brussels carpets, Tottenham Court Road furniture, cheap Italian mosaics, French oleographs, Austrian lustres, German tissues, and cheap brocades, I fear there is not much hope. I speak in no terms of reproach, because I think that in Great Britain we are just as bad in the pursuit of anything that takes our fancy in foreign lands, but I do say that if Indian arts and handicrafts are to be kept alive, it can never be by outside patronage alone. It can only be because they find a market within the country and express the ideas and culture of the people. I should like to see a movement spring up among the Indian chiefs and nobility for the expurgation, or at any rate the purification, of modern taste, for a reversion to the old-fashioned but exquisite styles and patterns of their own country. Some day, I have no doubt, it will come, but it may then be too late.

If these are the omens, what then is the aim of the exhibition and what purpose do I think it will serve? I can answer in a word. The exhibition is intended as an object-lesson. It is meant to show what India can still imagine and create. It is meant to show that the artistic sense is not dead among its workmen, but that all they want is a little stimulus and encouragement. It is meant to show that for the beautification of an Indian house or the furniture of an Indian home there is no need to rush to European shops in Calcutta or Bombay, but that in almost every Indian State or province, in most Indian towns and many Indian villages, there still survives art, there still exist artificers who can satisfy the artistic as well as the utilitarian tastes of their countrymen, and who are competent to keep alive this precious inheritance which we have derived from the past. With this object Dr. Watt and I have laboured in creating this exhibition; and in now declaring it open it only remains for me to express the earnest hope that it may in some measure fulfil the strictly patriotic purpose for which it has been designed.



THE TEMPLE AT SEGESTA, SICILY.



THE THEATRE OF ASPENDUS, ASIA MINOR.

The South Kensington collection of Indian handicraft, to which Lord Curzon makes reference in his speech printed on the preceeding page, was created out of the old India Museum, with a very large addition collected by the present director of the museum, Sir Purdon Clarke, C.I.E., in India in the early 'eighties. Sir Purdon Clarke, who was the first keeper of the Indian collections, went from one end of India to the other at a time when the country had not been exploited for this purpose; and many of the best of his acquisitions were bought for their weight as old metal. He also went right up to the north-west and met caravans coming in from Turkestan, amassing a series of carpets, rugs, shawls and copper vessels which can now never be equalled. The collection also owes much to Sir George Birdwood, late of the India Office, who as visitor to the museum brought his unrivalled knowledge of the subject to bear on the arrangement and description of the objects. His "Handbook of the Industrial Arts of India," published by the museum, is the best monograph on the subject; and his untiring research both in India and at home has placed students of the history of Oriental art under an obligation which can never be adequately acknowledged.

TOOTING BEC ASYLUM.

THE new asylum on Tooting Bec Common, London, S.W., erected by the Metropolitan Asylums Board for aged and infirm patients of unsound mind, is expected to be opened this month. Messrs. Johnson & Co., of Wandsworth Common, were the builders.

The asylum will provide accommodation in the first instance for 750 patients in nine blocks, seven of which (three male and four female) are for 630 infirm cases and two (one for either sex) for 120 "probationary" cases. Every block comprises three floors, each of which is as far as possible self-contained, with its own day-room and necessary offices. Each floor with an infirmary block will accommodate thirty patients, and in a probationary block twenty patients. The asylum is capable of further enlargement by the addition of two more infirmary blocks (one for males and one for females), which will increase the accommodation by 180. The upper floors of the patients' blocks are connected at the outer ends, in couples, by terraces of concrete and iron asphalted, and enclosed with railings and trellis-work, which, besides affording additional means of escape in case of fire, will enable patients to obtain open-air exercise on the same floor as that on which they sleep. Accommodation is also provided for the necessary resident staff, the attendants, male and female, being housed in two blocks at the front of the asylum overlooking Tooting Common, and the domestic staff in a block in the centre of the institution. The staff will take the meals in messrooms which have been provided near the general kitchen.

The administrative block, laundry, engine-room, electric-lighting machinery room, and boiler-house are situated centrally. The whole establishment will be electrically lighted. The boiler house will be the heating centre for the whole establishment, and will supply steam for the electric-light machinery and for laundry and kitchen purposes. The steam, gas and water mains have been placed in ducts which afford convenient access to the pipes. The cost of erection, machinery, boundary walls, &c., has been about £250,000, the site having cost £27,000.

Improvements at Eyemouth Parish Church Berwickshire, has just been completed under the direction of Mr. George Fortune, architect, of Kilmeny, Duns.

THE VENTILATION OF WEAVING SHEDS.

A LECTURE on "The Ventilation and Humidification of Weaving Sheds" was recently delivered by Mr Percy Bean, of Manchester, before the Accrington Literary and Philosophical Society.

Mr. Bean said that a humid atmosphere was absolutely essential for the successful weaving of certain cloth. Lancashire was particularly well situated in this respect, but there were many days when it was necessary to introduce moisture into the sheds.

In the opinion of the lecturer a weaving shed where "steaming" was carried on was the healthiest workshop in the world. With regard to ventilation, there were two systems—the natural, known as extraction, and the plenum or pressure system. Extraction might be produced by fans or by the natural tendency of vitiated air to rise to the roof, whence it passed out through crevices made for the purpose and was replaced with air coming in at a lower level from any and every possible opening. Until recent years all ventilation was carried on by the extraction principle, and for certain buildings it was the most suitable. It was a law in the science of ventilation that whatever system was used the air should be driven one way. The methods sometimes advocated of forcing air in with one set of fans and extracting with another set was simply wasting power and running fans for the sake of seeing them go round. In the majority of sheds ventilated in that way as good results would be obtained by stopping one or the other. The extraction principle was very suitable for small sheds not holding more than 200 looms; but above that size it was not often successful. The reason for this was that a large supply of the air which came through the walls and doorways had to travel a considerable distance before it was extracted, and consequently became contaminated. The plenum system was found the most successful for large sheds, if properly carried out. Ordinary fans were useless for that purpose as they would not work against pressure at low speed, and if worked at a very high speed they created downdraughts. Even shields did not prevent that objectionable feature.

The plenum system was applied by ventilating engineers in several ways. Some used centrifugal fans or pressure blowers, other reversed ordinary fans and sent in air instead of extracting it. It was also applied by forcing the air through a system of air trunks, either by means of steam or fans. These trunks extended nearly the full length of the weaving shed, gradually tapering in diameter. The trunk system was rarely draughty. With it the difficulty seemed to be to get sufficient pressure and volume of air down the trunks. For humidifying this method was most successful, but for ventilating it was found wanting in a great many cases. The fault was in the application. In order to get any benefit at all from the system it was necessary to place the trunks as low down as convenient, and do away with extraction fans. These fans placed in the roof removed the air sent in through the trunks, and very little of it was available for replacing the atmosphere breathed by the operatives.

Sheds with the above arrangement, which averaged twelve and thirteen volumes of carbon dioxide per 10,000 volumes of air, were reduced to an average of 7·5 volumes by simply reversing the extraction fans and forcing air in with them. That, of course, had the objection that it was draughty, but there were centrifugal fans on the market that did not create draughts. In any case it would have been far better to have made the roof good, rather than to have made openings and used power for the purpose of immediately taking out the good air which the manufacturer had gone to such trouble and expense to put in. In all cases where the plenum principle was adopted it was necessary to make the shed roof as air-tight as possible, and to close up all openings in the walls that were high up. The air should be forced in under pressure in such a way as to avoid draughts.

New Patents.

These patents are open to opposition until February 17th.

1901.—Girders.—22,104. A. ACKERMANN, Döhren, vor Hanover, Prussia. The girder is hollow, preferably of V-section, and has a tension rod bent over the ends and drawn down and secured on the underside of the girder by cross-bars. The tension bar is further stretched by wedge-shaped pins.

1902.—Sand Screens.—894. A. H. KENDRICK, 131, Soho Road, Birmingham. The screen has a wooden frame, but instead of fixed wires there are blades separated either by distance pieces or by springs. The size of the mesh can thus be altered to suit requirements.

Firebricks.—4,917. G. C. MARKS, 18, Southampton Buildings, Chancery Lane, W.C. (communicated by C. Frerichs, Berlin). The bricks are hardened by steam before being burnt, thus saving time and labour.

The following specifications will be published to-morrow and will be open to opposition until February 24th. A summary of the more important of them will be given next week. The name in italics is that of the communicator of the invention.

1901.—25,635, KATZ, automatic combustion regulators for steam or water heating plant.

1902.—564, PEARSON, regulating communication between drains, sewers, &c. 1,082, HINCHCLIFF, jointing bricks or tiles. 1,086, RICHARDS, lock escutcheons or keyhole liners. 1,159, ELLISON, T-squares and drawing-boards. 1,599, THOMPSON & CRYSTALLINE CO., LTD., glass tiles and bullnoses, &c. 1,604, EBDELL, stopping up drain, water and other pipes. 1,797, SMITH, machines for earthenware drain-pipes. 1806, HEYS (*Gilbreth*), concrete-mixers. 1,940, MCCAFFERTY, drawing-boards. 1,963, BRUCE, door-fasteners. 2,411, WEAVER & LOCKERBIE & WILKINSON, LTD., rim lock case and staple. 3,261, ZELLENKA, fireproof floors. 2,514, VON POSCHINGER, cathedral glass. 3,700, WHITTAKER, cramps. 4,867, EAYRS, adjustable case for holding plans, &c. 8,183, PARKER, casing of machines for crushing and grinding. 11,314, SCHWARZ, fireproof and non-conducting wall or ceiling. 13,187, HANSBURY, street sweepers. 19,414, BURGART & PENN, safety elevators. 20,416, MARCUS, pipe-wrench. 21,141, MOSELEY & MACNAB, wall framing. 21,784, DONNELLY, hot-water heating systems. 22,103, CHARPENTIER, T-squares. 22,544 and 22,557, RATHBUN & LONERGAN, sash balances. 22,806, BUSCHER, opening and closing fanlights. 22,881, FIELDING, high-pressure water taps. 22,944, KÜHN, concrete ceilings. 23,132, TURNER, bolts for doors. 23,199, SIDEBOTTOM & DRYBROUGH, joint for pipes. 23,209, ADAMS, fireplaces. 23,841, BENNETT, apparatus for warming and cooling rooms. 24,241, BANGERT, apparatus for heating water.

St. Philip's Church, Regent Street, London, built by Repton in the early part of the last century, is to be sold, as it has ceased to serve the purposes for which it was erected, owing to the provision of other churches in the district better suited to the requirements of the parish.

LAYING DOWN A SKITTLE-ALLEY.

By B. WYAND.

THE laying down of a skittle-alley is one of those small and apparently easy matters which are often vastly puzzling in actual practice. The architect or builder suddenly called upon to carry out such a work finds himself confronted by an array of detail upon which no text-book touches, and has, in consequence, to resort to one of two courses—to apply to his professional brethren or visit some existing alley.

In the laying down of the alley proper the question of cost scarcely enters, for the work (although of the plainest) must be of a substantial nature; and it is only in the construction of the building itself that any saving can be affected. In the plans accompanying this article the building is of brickwork, with composite roof-trusses, the covering being of slates; but these materials can of course be varied to any extent consonant with the building being weather-proof and in conformity with the local by-laws. As the average alley is attached to licensed premises it will be advantageous, in considering the details, to hold this in view.

The internal dimensions of the building given are 50ft. by 18ft., with a height to roof-plate of 9ft. 6in. The roof is supported by composite trusses placed at intervals of 10ft. and is open, the underside of the common rafters being matchlined, with purlins, principal rafters and collars wrought. The major portion of the floor is of ordinary wood blocks laid upon the site concrete, but the bowling run should be of oak, and the "frame" (*i.e.*, the portion where the pins are set up) of beech or other hard close-grained wood. An alternative section is given of a floor which the writer has seen laid for an alley, consisting of joists of truncated-wedge shape let into the site concrete, and batten boarded in the ordinary way. The kerb which surrounds the run should be of 5in. by 3in. oak set on edge, the back portion, which has to stand the impact of the "cheese" on the return throw, being of an increased depth.

At the upper end of the alley the floor drops about 6in., by which means the force of the cheese is broken and the life of the netting considerably increased. A layer of tan or sawdust protects the floor in this sunk portion, whilst the netting standards are fixed or movable as desired. The frame is fitted with nine stands, of 2½in. diameter countersunk and screwed to the boarding, for the reception of the pins, and it is needless to add that the greatest care should be taken to ensure the whole of the frame when complete being dead level. Skittle players are most particular upon the pins being perfectly upright and evenly placed, as upon this depends the taking of the nine in one throw, the natural aim of all players.

Bearing in mind that the alley is attached to licensed premises, and that not only will most of the games be for drinks but the audience will also require liquid refreshment, the wall dado which surrounds the alley is provided with a wide capping upon which glasses and pots may be placed. Seats also are provided, and in one corner is fitted a lavatory basin and in another a fireplace.

In most of the alleys which are laid down the kerbing is fixed, but a far better method is to have it movable (held in its place simply by bolts with countersunk heads) as the room may then be utilized for other purposes—meetings, concerts, "friendly leads," club business, dances, and so on, according to the grade of the licensed premises of which it forms a part. For this reason the entrance door is shown folding and opening outwards, and it would of course be advisable, if not necessary, to have separate means of exit.

Bricks and Mortar.

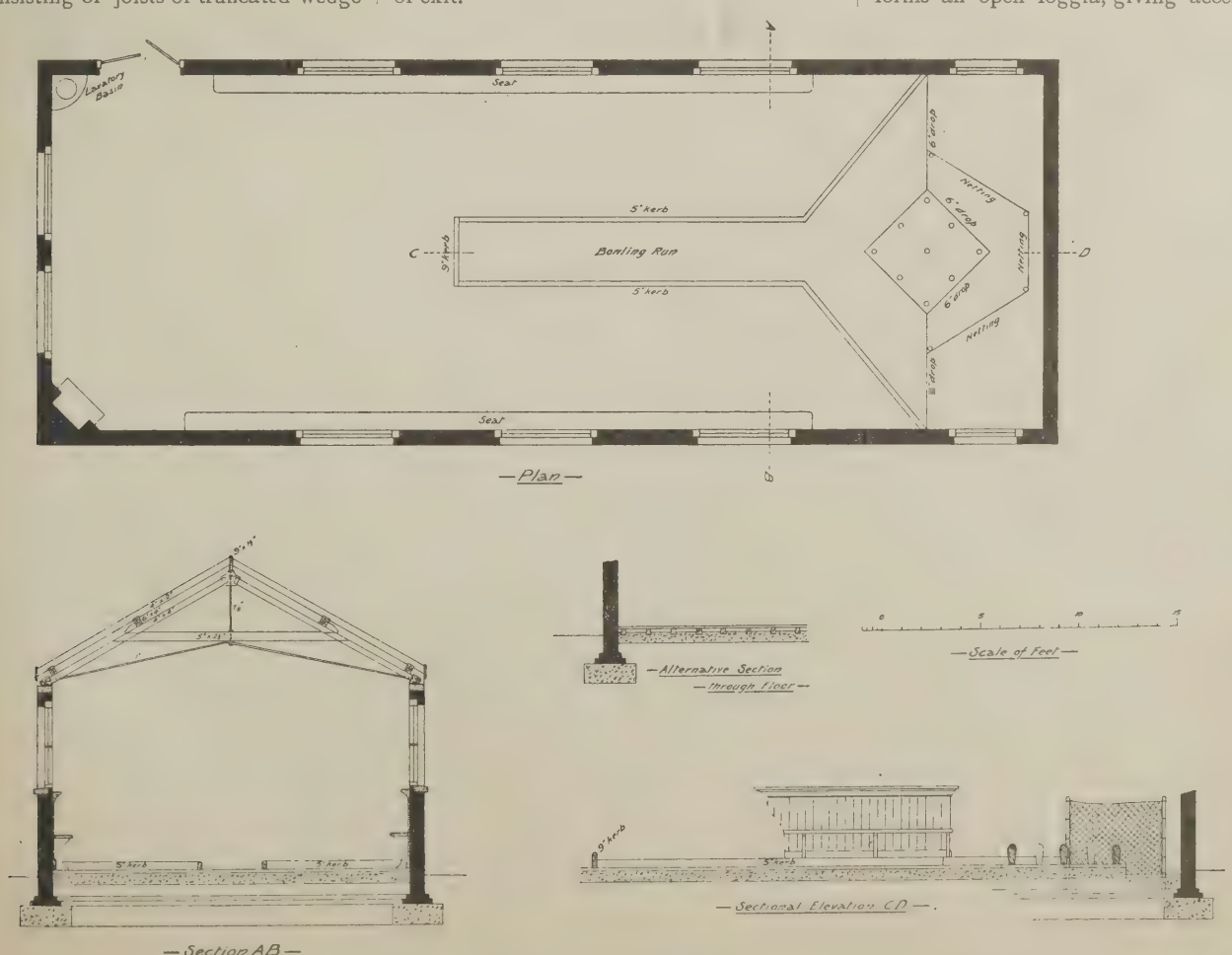
Aphorism for the Week.

Nature is not at variance with art, nor art with nature; they being but the servants of God's providence. Art is the perfection of nature. Nature hath made one world and art another. In brief, all things are artificial; for nature is the art of God.

SIR THOMAS BROWNE.

Our Plates. THE newly-completed Brorson Church at Copenhagen (Thorvald Jorgensen, architect) is a very able and interesting example of modern Dutch church architecture. The interior is especially noteworthy.—The doorway to the church of San Giobbe, Venice, which is one of the best examples of the simple reserved "portali" erected by Pietro Lombardo during the earlier phase of the Italian Renaissance, is built of white statuary marble, delicately carved, and has a smooth cement background of Venetian red which emphasizes the masterly detail and beautiful proportion which characterizes all the work of this period (1462).—The church near Via di Monseratti, Rome, situated in a narrow street running parallel with the Farnese Palace, is a delightful example of the free Classic churches of the fifteenth and sixteenth centuries with which Rome is so plentifully supplied, and the study of which had such a lasting influence on the architecture of Sir Christopher Wren in his London churches. The drawings by Mr. J. Forbes Smith which we reproduce were very skilfully executed in colour.

Cardiff's New Museum. THE chief feature of the frontage of the new museum to be erected in Cathays Park, Cardiff, will be an arcade of triple arches flanked by massive pedestals, to have equestrian or grouped figures. This arcade forms an open loggia, giving access to the



LAYING DOWN A SKITTLE-ALLEY.

central hall of the building, which will contain a double staircase, well-lighted from the top. From the central hall the gallery will extend east and west on the ground floor, which will, probably, be utilized for the exhibition of examples of industrial art. On the first floor the galleries will be used for exhibiting pictures and other works. A sub-basement floor under this will probably be used for the exhibition of a splendid series of casts of Celtic inscribed stones which for several years past the committee has been carefully acquiring. At the rear of the building the staircase, lobbies, &c., give access to a large wing, which it is intended to devote entirely to natural history purposes. It is intended to carry out the whole of the work in freestone. The architect, Mr. Edwin Seward, F.R.I.B.A., has been engaged for some considerable time in discussion with the committee in preparation of the scheme. He has also visited several of the principal cities in France, Belgium and Italy, and seen some of the leading buildings of this character, not forgetting the national museum at Zurich, opened last year, and the historic museums at Basle and Berne, this side of popular educational work having been especially developed in Switzerland of recent years.

M. Rodin. M. RODIN is expected to arrive in London before May, when the students of M. Lantéri at South Kensington will share with the Slade students the honour of entertaining the French artist at dinner. Nothing has yet been settled about the proposed exhibition of his work, but M. Rodin's friends hope that a site may be secured in one of the parks in which may be displayed in the coming season a representative collection. When M. Rodin comes to London in May he will again be the guest at Chelsea of Mr. John Tweed, who spent last summer with the French sculptor at Meudon. M. Rodin has just finished the sketch for the monument to be erected in Paris to the memory of Puvis de Chavannes. It consists of a bust set on a stele with a "Génie du repos dans la gloire éternelle." It has not yet been decided whether the memorial will be reproduced in ordinary stone or in marble. Thirty thousand francs have already been subscribed, a third of which sum is the contribution of the State.

A Spring-Cleaning of Statues. THE statues of national worthies in the Palace of Westminster are now being "spring-cleaned." The whole twenty-nine are receiving a thorough application of sponge and water. The rate of progress now is about three statues in two days, but the "pickling" at the expiration of each normal session is a longer business. The preparation known to the Office of Works as the "pickle" is a compound of sulphur, soft-soap and water, and is found to be very efficacious in restoring marble and ridding it of the atmospheric deposits which are working such havoc with the exterior of the Palace of Westminster and the walls of the adjoining Abbey.

Brockhampton Church: Mr. Lethaby's Work. THE newly-completed church at Brockhampton, near Hereford, of which Mr. W. R. Lethaby was the architect, has a rugged appearance due to the use of stone from two different quarries and the old-fashioned reed thatch gathered in the Norfolk Broads. Nor does this feeling forsake you as you enter the church. There is nothing to produce the impression of brand new, but rather that here the parishioners of Brockhampton have worshipped or have been married or christened for very many years. On coming to the font, one notices that the architect, with his love of symbolism, has decorated the basin with vine leaves and their stalks, to represent the True Vine. Around the base are the names of the donors. The Arts and Crafts Society of Birmingham have worked the font ewer, which is bold in design and execution. The oakwork of the church, which includes the pews, choir stalls and lectern, is simple but solid. The oak itself is all Herefordshire grown. Some of the pews and choir stalls were made by Messrs. Beavan & Hodges, of Hereford, and the rest were made by the carpenters employed on the site. As you look towards the chancel you cannot but help being impressed by the beauty of the east window and the two tapestries of angels placed on either side of the altar, and the harmony of colouring between glass and tapestry. The east window, the work of Mr. T. W. Whall, has for its subject "All Saints," to whom the church is dedicated. If Sir Edward Burne-Jones were alive to-day, says the writer of the article in the "Hereford Times" from which these particulars are extracted, one cannot help thinking how delighted he would be with the effect produced by the two angel choristers woven by Messrs. Morris from his cartoons, and so happily placed on the east end wall of this simple country church. Their presence gives a dignity and repose and a feeling of adoration that nothing one can think of can well supply. The reredos has a fine pietà carved in relief on a soft marble—the work of Mr. Richard Garbe, of Camden Town. In the characteristic Herefordshire oaken belfry are two bells, cast by Messrs. Taylor, of Loughborough, both of graceful form.

Enquiries Answered.

The services of a large staff of experts are at the disposal of readers who require information on architectural, constructional or legal matters. Questions should in all cases be addressed to the Editor. The querist's name and address must always be given, not necessarily for publication.

The Welsh National Eisteddfod.

SWANSEA.—TRY writes: "I should be glad to know who is the secretary of the Welsh National Eisteddfod, as I propose to enter for the competition in architectural design."

The secretary of the Welsh National Eisteddfod is Mr. W. H. Protheroe, Station Road, Llanelly.

Labour Constants.

LONDON, N.—HEATH writes: "Which is the most trustworthy book for obtaining labour constants? I find there is a considerable difference between Hurst's and your contributor, Mr. Coleman, in his 'Building Notes and Memoranda,' and also between others that I have consulted."

At the time when Mr. Coleman's constants of labour were published in our columns there was some criticism of their difference from those in other books. A reply to such criticism was published on p. 290 of our issue for June 25th, 1902, and we may repeat what we then said: "Men are not machines, and from the very nature of the conditions under which labour constants are obtained it must be expected that discrepancies will be found in the labour values as deduced by different observers." We believe Mr. Coleman's "constants" are more up-to-date and as generally accurate as any others.

Protecting a House against Lightning.

LEWISHAM.—S. D. T. writes: "A house is to be built on an isolated site which will be quite clear, except for three small trees. Would it be advisable to fix a lightning conductor to the building, and, if so, which would be the most suitable place? The roof is square hipped, with neither gables, dormers nor turrets. The chimney stacks will be level with the ridge."

The building you describe is, of course, as much liable to be struck by lightning as any other, and this might happen in a month, or not for a great many years. Being dependent on the position of a cloud, the question of whether it will be struck, or how often, is entirely a matter of chance. A lightning-conductor system is the only possible means of prevention against damage. Subject to exceptions due to conditions which have to be taken into consideration, the parts liable to be struck by lightning are those which form the most prominent features in each direction, and a conductor system to be effective must include lines of metal as conductors from all those parts. This may necessitate one main or trunk conductor with branches to the exposed parts, or even several trunks, according to the size of the building. It is difficult to say from the few details you give what the necessary system in your case would be, but it is very evident that a single conductor from any one part would be insufficient, and you should therefore either have the complete system of conducting lines required, or else have none and leave the whole thing to chance. If you care to send a roof plan to the Editor, with positions of any metals clearly marked, it will be returned to you with the course of the necessary conductors shown. ALFRED HANDS.

Vertical Tiling.

SWANSEA.—S. D. T. writes: "When fixing vertical tiling to an outside wall, should the tiles be hung to the battening or fixed to the brickwork direct?"

There are three methods of fixing vertical tiling. The first is to use patent fixing blocks built into the walls; the tiles are nailed to these. The second method is to nail with wooden pins direct into extra thick mortar joints—that is, three joints and two courses of bricks on the face of the wall equal three courses of brickwork with the usual four ¼in. joints at the back: this gives a proper 2½in. lap. The third method, which is to nail into the ordinary ¼in. joint of the brickwork, only gives a lap of 1½in., which is scarcely sufficient. Full details of these methods of tiling will be given in "Specification, No. 6."

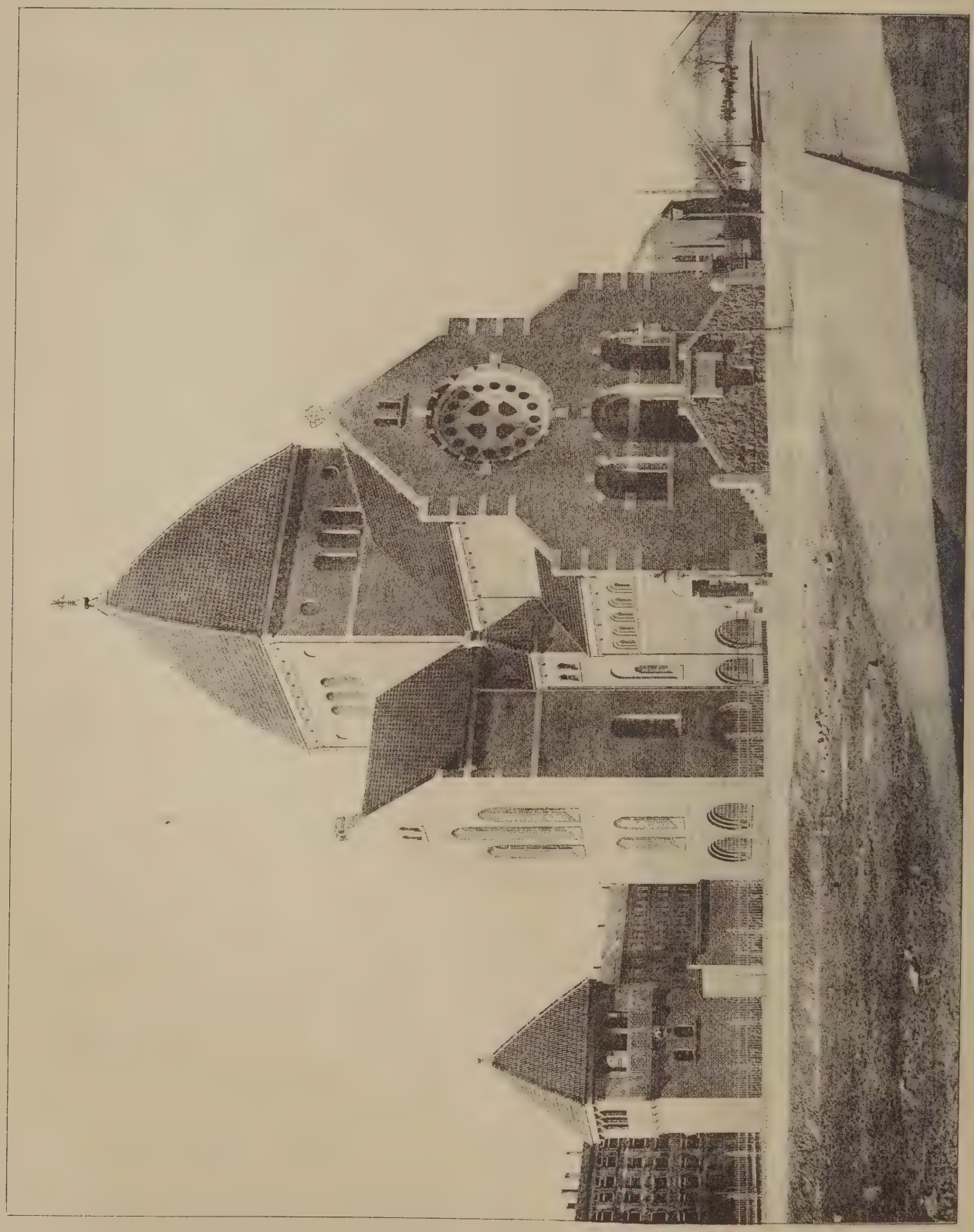
Law Cases.

Leeds New Building By-laws: First Case.—The Leeds stipendiary magistrate gave his decision last week in the case of W. Brown, trading as Haste & Brown, of Bramley, who had been summoned under the new Leeds building by-laws in respect of certain premises. This was the first prosecution under these recently-adopted regulations. The magistrate said the breach alleged was that the depth of the joists was insufficient, being less than the depth prescribed by by-law 58 for joists in the floor of a building of the warehouse class with a length in the clear of more than 6ft. but not less than 9ft. It was contended on defendant's behalf that, inasmuch as the joists rested on steel girders and not upon wooden beams, the by-law did not apply. The stipendiary magistrate held that the evidence showed that the information was based on by-law 58, and that by-law 60, which it had been urged was the one applicable to the defendant's case, had been complied with. Under these circumstances he thought it was in the interests of the parties concerned and of the public that the summons should be dismissed.

Society of Architects.—The subject set for the students' competition is a cottage hospital, with wards for men, women and accidents; each ward to contain three beds. The award will consist of books or instruments to the value of £3 3s., to be selected by the successful competitor.

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Supplement to
THE BUILDERS' JOURNAL AND ARCHITECTURAL REVIEW,
Wednesday, January 7th, 1903.



THE BRORSON CHURCH, COPENHAGE



"INK-PHOTO." R. J. EVERETT & SONS, 56 LUDGATE HILL, E.C.

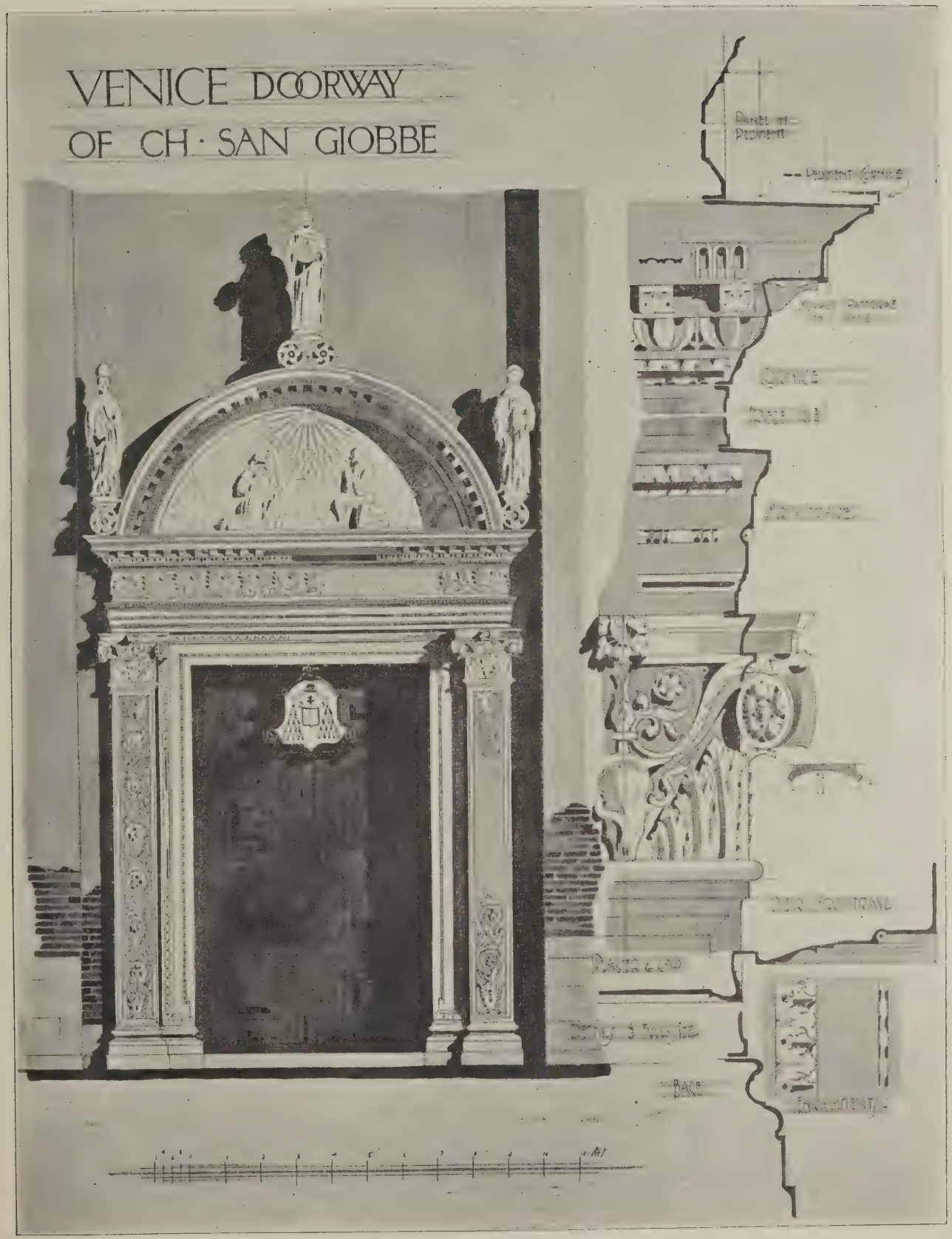
THORVALD JORGENSEN, ARCHITECT.

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Y J. FORBES SMITH.

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THE BUILDING TRADE IN 1902.

THE slackness which was apparent at the end of 1901 continued during 1902, if anything being worse than the previous year. As a rule corporations and public companies have been little disposed to embark upon fresh undertakings, while speculative builders are still inclined to play a waiting game. The continued high price of material, combined with the maintenance of the old rate of wages, has undoubtedly impeded enterprise. Latterly the prices of certain minor items of material have become a little easier, but not to a sufficient extent to influence trade. In the provinces the want of employ- has driven a good many workmen to London, where things appear to be little better. According to the recently-issued returns of the Board of Trade, the percentage of unemployed members among union carpenters and joiners throughout the kingdom was 4·4 at the end of November, as compared with 3·9 at the corresponding period last year.

England and Wales.

Birmingham.—Probably 1,700 or 1,800 small houses have been built, mainly at Small Heath, Bordesley Green and Saltley. There is a constant demand for houses at a rental of from 6s. to 10s. per week. On the whole, trade in the city has been very slack.

Blackpool.—The annual report presented by the borough surveyor to the Building Plans Committee, which covers the year ending October 31st last, shows that the growth of the town is being steadily maintained. During the twelve months 383 houses were erected and certified for human habitation, this being an increase of thirteen over the previous year, and at the rate of 1·22 houses per working day for the whole year. The whole of the work carried out has been carefully inspected by the surveyor and his staff. During the year seven estate plans received approval, representing 4¾ miles of new streets, of which 2½ miles were front streets and 2¼ miles back streets. At the present time 225 dwelling-houses are in various stages of erection. During the year the building inspector and assistant inspector have made 6,067 visits to buildings in progress. The by-law as to concreting or asphalting sites of domestic buildings has been rigorously enforced, and during the year the Corporation have instituted legal proceedings for breaches of the by-laws in twenty-four cases, of which twenty were successful. The surveyor urges the advisability of adopting the draft by-laws relating to the strength of timber, sanitary appliances, &c. The following statement shows the number of plans submitted, number approved, number disapproved, and total number of houses certified for human habitation during the past year:—

Plans submitted.	Plans approved.	Plans disapproved.	Certificates for human habitation.
396	238	158	383

The approved plans for the past year consist of the following amongst other buildings:—

Dwelling-houses	528
Shops	41
Additions and alterations	70
Stables and coach-houses	17
Warehouses	5
Offices and store-rooms	2
Workshops	21
Churches and additions	1
Estate plans	7

Bradford.—A prolonged strike of carpenters, the most serious disturbance in Yorkshire, occurred at Bradford, and was settled a few months ago. The only two contracts of any note let during the year relate to Corporation projects, namely, the new markets extensions and the erections of the central baths and public hall in Morley Street; and no important contracts, as far as we can learn, have been let for the coming year.

Coventry.—In the twelve months ending November 30th last, 714 plans have been approved—556 houses, 29 factories and workshops, 53 alterations and additions, 66 miscellaneous buildings and 10 streets. The buildings completed in the same time number 467—403 houses, 18 factories and workshops, 19 alterations and additions, 21 miscellaneous buildings and 6 streets. No churches, chapels or schools have been built. During the year 320 plans have been laid before the General Works Committee, of which number 43 were disapproved.

Hull.—The building trade in Hull is described as in a critical condition. Among the greater schemes in hand are the Alexander Theatre, the offices of the Prudential Assurance Co. and of the Lancashire and Yorkshire Railway Co. at the corner of King Edward Street, Powolny's Restaurant in the same thoroughfare, and the Central Police Station in Alfred Gelder Street. The buildings and work expected to be begun during the next year include the extended Paragon railway station, the General Post Office near the Town Hall in Lowgate, and the Municipal Public Hall in Victoria Square.

Harrogate has had a pretty good year. The Kursall, the Grand Hotel and the Central Arcade, connecting Beulah Street and Chapel Street, have found employment for a considerable amount of labour, but present indications are that when the projects now proceeding are out of the way the building trade will be quiet, at any rate until the summer months. The scheme for the erection of a new town hall appears to have been indefinitely deferred.

Huddersfield.—Trade was fairly good in Huddersfield until a month or two ago, but it is now very quiet, and immediate prospects are not good.

Leeds.—In Leeds nothing has occurred to interfere with the friendly relations between employers and employed. In one or two branches of the trade there has been a rearrangement of the winter time sheet, but this has been effected without any friction. In any event, peace is assured in Leeds for close upon eighteen months as far as the masonry and bricklaying departments are concerned. An alteration of conditions of employment can only be made by a six months' notice from November, and both masters and men allowed the month to go by without making any move. The plans submitted to the Leeds Corporation for approval from November, 1901, to November, 1902, number 2,874—some hundreds less than in the previous year. The number of houses built (a little over 2,000) is about the same as last year. The falling-off is most noticeable in big undertakings. Another stage in the transformation of the centre of the city, more particularly in the neighbourhood of Briggate, has been completed, and considerable progress has been made with the Kirkgate market hall and the market extensions, which will still provide work for many months to come. Some large contracts are continued from the previous year, and the outlook in Leeds is rather brighter than it was a few months ago Forthcoming contracts include three or four Board schools.

Manchester.—Within the year ended the 31st October 855 sets of plans for all kinds of buildings in the city were submitted for approval to the Improvement and Buildings Committee of the Manchester City Council, and of these 754 were approved and 101 disapproved. In addition to these approvals, which related to permanent buildings, seventy-eight licences were granted for temporary structures. New dwelling-houses to the number of 1,662 were in the same period certified as fit for habitation. By way of comparison it is worthy of mention that in the year ended October 31st, 1898, four years ago, 2,773 new houses were certified as fit for habitation. That was the largest number ever so certified within the city in the course of a single year. In 1899 there was a slight decline, the figure being 2,704, or only sixty-nine below that of 1898, but in 1900 there was a further drop to 2,308, a difference of 396 by contrast with the previous twelve months; and in the year ended October 31st, 1901, there was a further reduction to 1,677, or 1,096 fewer new houses were certified than in 1898. No fewer than 550 buildings in the city were reported to be dangerous in the past municipal year. In 445 cases out of this total it was found necessary to serve notices for the removal of the danger, which perhaps, as a rule, meant the removal of the structure affected. An important change with regard to public improvements in Manchester is the establishment last year of a City Architect's Department to meet the extraordinary demands which were made upon the administration of the City Surveyors' Department under the old system, whereby architecture was but a branch section of Mr. T. De Courcey Meade's sphere of action. Mr. Henry Price was appointed the first city architect. He went from Birmingham, and entered upon his new duties at the beginning of June. The following buildings of importance were erected in 1902:—The Victoria Baths in Chorlton-on-Medlock; a police and fire station for the C Division (which is in course of erection) in Mill Street, Bradford, at a cost of about £30,000; an extensive addition to the Retail Fish Market; the Electricity Committee are about completing the erection of nineteen electric sub-stations within the City and the suburbs (their total cost will amount to about £80,000); the Whitworth Hall at Owens College and the Municipal School of Technology in Whitworth Street, St. Mary's Hospital, the Midland Hotel, new offices of the Economic Fire and Life Company and premises of Parr's Banking Company in Spring Gardens, Northern Insurance Company building at the corner of Clarence Street, and offices for the Eagle Assurance Company in Cross Street. Among a fair number of important street widenings and improvements which have been carried out in various parts of the city, under the direction of Mr. Meade, is the widening of Rochdale Road, under the powers of the Manchester Corporation Act, 1897, from 14yds. to 25yds. The work was previously commenced, and has been continued from Lees Street to Pilling Street. The intended new street between Ashley Lane and Charter Street will soon be completed. Long Millgate is being widened from 9yds. to 16yds. A great improvement has been accomplished in Whitworth Street West during the year by the reconstruction of the canal tunnel running underneath Deansgate, and the provision of a towing-path under the street level.

Scarborough.—The new buildings erected and formally opened during the year include the new poor-law offices in Dean Street, erected at a cost of £1,916; the new goods station of the North-Eastern Railway Company in Gallows Close, which has been erected at a cost of about £9,000; St. Saviour's Church, Gladstone Road; a new chapel and a new wing at the Royal Northern Sea Bathing Infirmary, erected at a cost of about £2,000. The new cemetery chapel, caretaker's lodge and stables, erected at a cost of £3,000, were completed in September.

Sheffield.—Building operations have not been so active during the year as they were in 1898 and the two following years, but the figures are quite as large as last year. The plans for buildings of different kinds deposited with the city surveyor number 1,276, against 1,122 during the preceding

twelve months, and the plans for streets and sewers 36, against 35 last year. On the plans deposited were shown 1,960 houses, all of which have been sanctioned, against 2,041 last year, a slight decrease. Sanction was also given for the erection of 588 other buildings, including churches, chapels, mission-rooms, workshops, clubs, &c. Certificates of "fit for habitation" have been given during the year for 1,925 houses, compared with 2,118 during 1901. Of the work in hand for the Corporation, there is the large hospital at Crimicar Lane, which is costing £18,000; the additions to Queen's Road car-shed, which, when completed, will make room altogether for 150 cars; the Penistone Road destructor, which is nearly finished; the Crofts dwellings, which will cost altogether £28,000; the Park Baths, the Brightside recreation grounds, which have been laid out and a new lodge erected at a cost of about £1,500. The Corporation have not yet decided how the second portion of the Crofts area shall be dealt with, but the work will be pressed forward. Building will also most probably be commenced on the Wincobank estate during the coming twelve months, but it will take years to fully develop it.

Southport.—The number of plans approved during the year again shows a decrease, principally in dwelling-houses. The number of outbuildings certified on completion also shows a considerable decrease. The following shows a comparison for the last two years:—Dwelling-houses, attached, 3; dwelling-houses, detached, 17; dwelling-houses, semi-detached, 75; shops, 5: houses with shops, 9; additions, &c., 40; fowl-houses, 2; verandahs and sunshades, 1; stables, coach-houses, &c., 14; washhouses, 6; shop fronts, 6; warehouses, 3; workshops, 9; cart and carriage sheds, 3; greenhouses, &c., 19; water-closets, bathrooms, &c., 12; store-rooms, 6; sheds, &c., 9; bay windows, 4; porches to houses, 2; mortuary, electric supply stations, &c., 3; hotels, 1; institutions (homes), 1—total, 250, as against 342 in 1901.

Yarmouth.—There has been more than average activity in the building trade during the year. The Britannia Pier, and Goode's Hotel, Restaurant and Assembly-rooms, have been amongst the most notable undertakings completed. There has been great extension of fishing premises upon the South Denes for the pickling and curing of fish, and there has been a considerable addition made to the Fish Wharf. The extension of the Wellington Pier, also, has been commenced by the Corporation. On the North Parade building has been very general, and in Newtown, on the North Denes, new streets have been busily forwarded, as also has been the case at Southdown, on the Lichfield estate, where development has been progressing with remarkable vigour. The timber trade was active, the Baltic was late in opening, and consequently the stocks of Yarmouth firms had considerably run down by the end of May; and there was the further result that since that period of the year all the quays—and yards have continued to be in a very congested state, on account of the quick succession of arrivals. The quantity of timber which has been supplied for the local building trade indicated a considerable movement, if not a particularly flourishing condition, during the year. Whereas 1901 was itself a record year with the timber trade, 1902 will be able to show an advance upon it of something like 25 per cent.

York.—At York there is a rather better outlook. The contracts for the new asylum for the city, estimated to cost about £100,000, will be let early in the new year. Many municipal works are contemplated, including extensions of the electricity works, and it is expected that private enterprise will also be responsible for a good deal of activity. During the year much progress has been made with the new offices of the North-Eastern Railway Co. in Toft Street, and among important buildings in hand are two new large Board schools and a new church for the Foundry district.

Scotland.

Aberdeen.—In the Aberdeen granite industry there has been considerable activity for the year 1902, both in the building and monumental branches of the trade, and prospects for the coming season are fairly bright. Architectural orders have been fairly plentiful. Granite for bridge building and other public works has also been in demand. For all the local granites the demand has, as usual, far exceeded the supply, the quarries being hampered to a great extent by unfavourable weather and other causes. Fortunately there has been a good supply of foreign granites, this enabling local merchants to fulfil orders within a reasonable time. The following tabulated statement gives this year's figures compared with those for 1901:—

	1902. Tons.	1901. Tons.
IMPORTS.		
Foreign granite - -	16,280	20,607
EXPORTS.		
Causeway stones - -	37,300	35,214
Kerbs, pavement and building stones - - -	8,546	8,716
Rubble stones - - -	9,210	11,594
Polished stones - -	9,393	8 933
Granite waste slabs - -	4,893	5,515
	69,382	70,002

Dundee.—The building trade in Dundee during the past year has been somewhat fitful; there has been a marked shrinkage as compared with the previous twelve months, tending to a period of depression the extent and consequences of which, at the moment, can scarcely be determined. During the period under review, operations, generally speaking, have not been widely diffused, but in the main have concentrated on one or two large contracts, without which the trade would have been badly off. Outside of these little new work has been inaugurated. During the year wages in two of the departments of the building trade have been advanced. In August the masons were conceded a rise—hewers from 8d. to 8½d. and builders from 8½d. to 9d.; and only recently the plasterers had their pay raised to the extent of ½d., which early in the year had been taken off. Several causes other than briskness of trade have accounted for these increments. Trade in such centres as Edinburgh and Glasgow, where higher rates prevail has been exceptionally active, and this circumstance naturally reacted on the local labour market. But what has operated in the direction of stiffening the labour market is the relationship between the Employers' Association and the Operatives' Unions. The rate of wages is fixed on a three months' agreement, and the builder and joiner is thus enabled to make his calculations with some degree of certainty, the rate of labour accordingly affecting the client rather than the contractor. How long this policy may be maintained is a question, but it is thought that the depression which is looked for will necessitate an all-round reduction of wages. Concerning the prospects of this year, the outlook, as indicated, is far from promising.

Dunfermline.—The Burgh Engineers' statement shows the number of plans passed by the Dean of Guild Court during the year ending September 30th, and the estimated value of properties proposed to be erected. It appears from this that during the year there were eighty-five applications for warrants to erect or alter buildings at an estimated cost of £104,822. Twenty-three of the applications were for dwelling houses at a cost of £47,350; seventeen applications were made for erecting or extending business premises, the cost being £12,780; and plans for the alterations of church buildings were passed at a cost of £700; the new Carnegie Baths are estimated to cost £35,000, and there were as many as thirty-three applications for small additions to buildings, the cost being £8,922. The estimated cost of the past year was £104,822, as against £62,445. The increase is largely accounted for by the new Baths.

Glasgow.—During the year the several trades associated in the building industry throughout the city have been in a prosperous condition. The relations between employers and employees have been of such a nature that no dispute has occurred, and the outlook at present bids fair for another year, although not of so rosy a description as prospects were at this time last year. The valuation of the linings granted by the Dean of Guild Court of Glasgow during the year tops the record of any previous year, the value for this year being £2,549,698. Only once before in the history of that court has the valuation exceeded two millions, and that was in the year 1876, which is sometimes referred to as the year of the height of the building fever. The valuation for that year was £2,125,249. It may be noted that the valuation of linings for dwelling-houses alone for last year amounted to £1,458,710, being more than the value of the linings for all other purposes. Only in one other year since 1876 has the value of dwelling-house property alone exceeded one million, and that was in 1898, when it was £1,240,410. There is no reason at present to suppose that the amount of this class of property is largely in excess of the demand. Messrs. Calder, Henderson & Livingston, Glasgow, in their annual report of the Clyde timber market, say that, although the outlook a year ago was not promising, business during the year just closed has been very good. With the exception of the cabinet-making trade, which has gone through a time of severe depression, all the industries associated with the timber trade—shipbuilding, house-building, engineering and wagon-building—have had a year of continued prosperity.

Inverness.—There has been a slight depression in the Inverness building trade. The slackness in the building and allied trades was perceptible from beginning to end of 1902. Large numbers of workmen left for Glasgow and other centres of industry. A fair number of small building contracts were executed, what might be termed the normal amount of villa and cottage building, and improvement of houses and business premises being carried on.

Leith.—In the report on the building trade in Leith during 1902, issued from the Burgh Surveyor's office, it is stated that the year has been marked by a great want of briskness, and that the outlook for the coming year is not encouraging. A total of seventy-six warrants to build was granted by the Dean of Guild Courts—the majority being for alterations on or small additions to existing property. Eleven of these warrants were for shops and tenements, and included nine shops and 251 dwelling-houses, and five warrants were granted for villas and self-contained houses. Seven warrants for warehouses, stores, &c., were granted.

Paisley.—The work done in the Paisley Dean of Guild Court during the past year included 104 cases presented, the valuation of the property in connection with these being estimated at £157,050. With regard to the classification of these, there were 38 four-storey tenements, 11 three-storey tenements, and 30 villas and self-contained cottages, while the remainder referred to alterations and additions.

Correspondence.

"In the Welsh Marches."

To the Editor of THE BUILDERS' JOURNAL.

LONDON, W.

SIR,—Mr. Charles G. Harper deserves the thanks of your readers for introducing to their notice an extremely interesting section of Britain. May I point out that Wales proper also abounds from end to end in buildings of the greatest interest? Setting aside such well-known places as St. David's, Brecon, Conway and Carnarvon, one frequently finds there in the most out-of-the-way places buildings of unusual character and charm.

So far as I am aware no one has yet chronicled the peculiarities of the great church at Clynnog in Carnarvonshire, or that of Llaneilian in Anglesea, with its unique rood-screen; and I have never seen any reference to the fine church of Hanmer in Flintshire (now, alas! destroyed). Instances might readily be multiplied, and in these days when economy is the rule many a suggestion may be gleaned with advantage from the charming buildings—domestic as well as ecclesiastic—of the Principality.

As regards detached belfries there is not, I think, so much difficulty in accounting for the bulk of them as Mr. Harper appears to suppose.

There is in many instances — Chichester and Coventry, for example—ample recorded reason for the existence of these detached towers, but as a rule it may be safely asserted they served much the same function as the round towers of Ireland and the peels or peel-towers of the North—that is, they combined the function of belfry with the no less necessary one of a place of observation and defence in troublous times

Obviously such places of refuge were better detached than united to a building, although there are, of course, numerous instances of towers—such as the central one of St. German's Cathedral at Peel, in the Isle of Man—which were embattled for defence rather than for ornament.—Yours truly.

GEORGE HORNBLOWER, F.R.I.B.A.

Old Brass Lecterns.

To the Editor of THE BUILDERS' JOURNAL.

LONDON, N.W.

SIR,—The correspondent to whom you replied on this subject may perhaps be glad to know of the fine fifteenth-century brass eagle lectern now in Oundle Church, Northamptonshire. It is reputed to have lain for many years at the bottom of the River Nene —I know not on what authority. A wooden pulpit with colour decoration (much defaced) of about the same date is also in this church. —Yours truly, E. G.

Building Materials in New York.

To the Editor of THE BUILDERS' JOURNAL.

NEW YORK.

SIR,—The Blair Building, which you illustrated in your issue of December 10th, is attracting more attention in New York than any other skyscraper that has been erected in recent years. This is because it is undoubtedly the tallest building ever erected of marble. It is realized that this stone demands a different treatment from any other material, and the architects have been very successful in adopting the style best suited to white marble. Many of the very tall buildings erected in America have used granite as far as the second storey, the rest of the walls being carried up in light-coloured brick, with terra-cotta dressings. Where stone has been used for the entire front, it has almost invariably been Indiana limestone. This is an oolitic stone and is found in two colours—buff and the so-called blue, which is in reality a dark grey. Although the buff stone is thought to be not quite as durable as the blue, it works much more easily and is generally preferred because of its richer effect.

Granite is seldom used for skyscrapers, on account of the great cost of working it, although there are a few notable structures of this kind in New York. One of these is the Empire Building, one of the finest office buildings in America. This is twenty-two storeys high, overlooking Trinity Churchyard, and has a frontage on three streets, thus assuring unlimited light. The Hanover Bank Building is just being completed. This is also twenty-two storeys in height, and is entirely of pink Milford granite.

Considerable use has been made of white marble for buildings in leading American cities, and during the past year the demand for this stone has increased beyond all expectation. While it has been employed in many immense structures, like St. Luke's Hospital and the Stock Exchange, it has generally been put in buildings which cover a large amount of ground space but do not rise high in the air. The Metropolitan Insurance Building at Madison Square, which covers almost an entire city block, can scarcely be called a skyscraper, as it is only ten storeys high. This is of white dolomitic marble.

Perhaps the sole skyscraper of marble in New York, pending the completion of the Blair Building, is the Home Life Building, of fifteen storeys, opposite the City Hall Park. This attracted wide attention several years ago from the fact that it was the first of the skyscrapers to suffer from fire. The side windows overlooking the adjoining property were not protected by iron shutters, and fire entered through these openings and wrecked the building, although it was supposed to be fireproof. It was found necessary to tear down and rebuild almost the entire façade above the fifth floor.

The Blair Building will be eighteen storeys in height, and from the foundation to the cornice the walls will be entirely of white marble. The stone is all tooled and the carving is chaste and not profuse.

The stone for this building is quarried in Dutchess county, about seventy miles from New York city The quarries are three miles from the Harlem railroad, close to the Connecticut line. The stone is conveyed from the quarry to the sawmill and cutting sheds at the railroad over a private electric tramway. This enables very quick deliveries to be made. It is not uncommon for blocks to leave the mill in the evening and to be set in the building the next day. It would be entirely possible as a matter of record for a block of marble to be taken from the quarry bed one morning, be sawed and dressed, and finally be laid in the walls of the building within twenty-four hours.

There has been no comment as yet in the foreign architectural papers over the fact that New York at the present time is undergoing one of its periodical changes of fashion in structural material. Two or three generations ago white marble was supreme, both for public buildings and for costly private residences. Then followed the reign of brownstone, with the result that there are countless blocks showing unbroken lines of sombre, dark-hued houses. As brownstone did not weather well it was gradually supplanted with the light-coloured sandstones. About 1885 began the introduction of Indiana limestone, and after a few years it had the market almost exclusively to itself. Within the past decade it has so come about that it has been almost impossible to obtain a figure from cut stone contractors on any other material than Indiana limestone. The extent of the industry can be judged from the fact that one quarry at Bedford shipped to New York an average of nearly 500,000 cub. ft. of limestone each year. During the early months of 1902 architects began to show a preference for marble for public and business buildings. At the present time more than twenty important new buildings of this material are in course of erection. These include such striking structures as the Stock Exchange, the Chamber of Commerce and the New York Public Library.—Yours truly,

FRANK W. HOYT,
Editor of "Stone."

Income Tax Payments and Deductions.

To the Editor of THE BUILDERS' JOURNAL.

41, NORTH JOHN STREET,
LIVERPOOL.

SIR,—The Inland Revenue authorities are now rapidly calling in all the unpaid income tax for the year 1902-3. The tax was payable on or before January 1st.

All persons who are called upon to pay should carefully examine their assessments, ascertaining whether or not they are overcharged, that is, upon a sum exceeding their assessable income; they should also be careful to claim the full amount of abatement they may be entitled to, together with allowances for any other annual charges allowable. Life assurance premiums can be deducted if the assurance is effected in an English office, although some American offices, to meet English clients, refund to them the amount of income tax disallowed by the authorities.

Merchants, brokers, dealers, tradespeople, and all others assessed under schedule D, should lose no time in lodging their appeals. The present income tax is heavier than it has been for many years past. Deductions should be claimed by manufacturers and others for expenditure incurred in repairs and alterations of machinery; also, in cases where modern machinery has been erected in the place of old, claims should be made. Thousands of people pay income tax each year who ought not to pay at all, and such should claim at once the fullest relief they are entitled to. With very few exceptions those persons whose incomes do not exceed £160 per annum, and have not done so for the past three years, can claim repayment of all tax paid on, or deducted therefrom, for those years; those whose income is derived from rents, dividends or interest should exercise special care in this respect, as the tax is usually deducted before they receive their income: the refunds may amount to so much as £25. Incomes not exceeding £160 per annum are free from tax. Those whose incomes do not exceed £700 are also entitled to substantial abatement, and where it has not been allowed it should be claimed at once. We shall be happy to advise your readers gratuitously as to whether or not they can establish a claim, if they send full particulars of income and a stamped addressed envelope for reply.—Yours truly,

THE LANCASHIRE TRADING ASSOCIATION.

COMPETITION REFORM SOCIETY.

High Wycombe Town Hall and Municipal Buildings Competition.

THE committee of the above Society disapproves of the existing conditions of this competition, but is endeavouring to get them revised. It has therefore issued a circular to its members requesting them to abstain from competing unless they receive a further communication to the effect that the conditions have been satisfactorily revised. The clause objected to in the conditions is as follows:—"The President of the R.I.B.A. or some architect to be nominated by him will be asked to make these awards according to his judgment; *but the Corporation do not undertake to carry out any designs, and reserve the right to select for erection any set of designs (whether awarded a premium or not) they themselves prefer.*"

BRONZE DOORS IN ITALY.

AN interesting article on this subject recently appeared in the "American Architect." The author, Prof. Melani, says :—

During the second half of the eleventh century, and in the twelfth century, bronze doors, particularly those executed in Constantinople, had an extraordinary vogue in Italy, but as soon as Italian artists attempted to imitate them the fashion ceased, and, side by side with doors unquestionably of Byzantine origin, the peninsula decorated itself with doors which betrayed their national origin.

The bronze doors of S. Zeno at Verona are really older than the period under consideration, but they have not come down to us in their primitive state; for in the twelfth century they were very materially worked over, and of the ancient parts there only remain the left leaf and some of the lower bas-reliefs upon the right leaf. The carvings in general are crude, especially those of the eleventh century, but the general decorative effect of the door is particularly remarkable.

Anyone desiring a model of doors of the twelfth century should not lose sight of the bronze doors of the cathedral at Benevento, in the south of Italy. The work is a monument of exceptional beauty for its time, and its general air and artistic worth connect it directly with the school of art which produced the celebrated doors of Andrea da Pontadera at Pisa and Lorenzo Ghiberti at Florence to such a degree as to enable one to affirm that the door at Benevento holds the same place in the art of the twelfth century as is held by the doors of Pontadera and Ghiberti. The door exhibits forty-three scenes from the history of the life of Christ; and this sacred composition is quite unique in the twelfth century.

The doors at Benevento are sometimes compared with the two doors at Troia and Ravello, in the south of Italy, but if the details of the sculpture upon these doors remind one of those at Benevento the resemblance of the ensembles is less noticeable.

Below is a short list of Italian bronze doors, naturally limited to the epoch of the Middle Ages. In addition to the name of the structure, I give the year or the epoch, the place of origin, and possibly the name of the author; and I will add that this list of mine corrects inaccuracies in lists elsewhere published :—

Doors Engraved and Incised.—Cathedral of Amalfi (1062), Abbey de Montecassino (1066), St. Paul, Extra Muros, Rome (1070), Monte S. Angelo a Gargano (1076), Cathedral of Salerno (1077), S. Salvatore, Atrani (1087)—all of Constantinople; Chapel of Boemondo at Canosa (end of eleventh century), Ruggero d'Amalfi; S. Mark's, Venice (1085), Constantinople; S. Mark's, Venice (1112), imitation by a Venetian artist.

Doors decorated with Bas-reliefs.—S. Zeno, Verona (tenth to twelfth century), partly German work; Cathedral of Troia (1119), Cathedral of Troia (1127), S. Bartolomeo, Benevento, destroyed (1150-1)—all of Oderisio Berardo; Cathedral of Trani (1160), Cathedral of Ravello (1179)—both of Barisano di Trani; Cathedral of Pisa [1180 (?)]; Cathedral of Pisa, destroyed [1180 (?)]; Cathedral of Monreale (1186)—all of Bonanno da Pisa; Cathedral of Monreale (end of twelfth century), Barisano di Trani; Abbey of S. Clemente, Casoria [twelfth century (?)]; Cathedral of Benevento [end of twelfth century (?)]; St. John Lateran, Rome (1196), Umberto and Pietro da Piacenza.

Now, let us leave the Mediæval epoch, and at the very opening of the Renaissance we shall find a door of admirable beauty, one of the most exquisite ornaments of the Italy of the fourteenth century, the work of Andrea da Pontadera, falsely styled da Pisa, he being really a citizen of Pontadera, one of the suburbs of Pisa. Born in 1270, he died at Florence in 1348; and during this long lifetime of seventy-eight years we know with certainty of only a single work of his, the door with which we are now dealing. This is found in one of the secondary entrances of the Baptistery at Florence. Well composed, as the door as a whole certainly is, it deserves examination more because of the many bas-reliefs which divide it into twenty-eight panels, twenty of which are devoted to the life of St. John and eight to the illustration of the virtues. After examining this door, one understands the incomparable power of the two other doors of the Baptistery, the work of Lorenzo Ghiberti.

In Italy one cannot speak of bronze doors without having his thoughts turned to those doors which Ghiberti sculptured for two of the entrances to the Baptistery at Florence. The Baptistery has three doors, and everyone remembers the competition which was held for the first door, which brought face to face several of the leading sculptors of Italy, artists as celebrated as Jacopo della Quercia and Filippo Brunelleschi, the great architect. At the last moment the struggle lay between Ghiberti and Brunelleschi, who each executed a bas-relief which is still preserved in the National Museum at Florence; and everybody now knows that in 1403 Ghiberti received the commission for executing the door, which, still in a good state of preservation, commands our admiration at the Baptistery. These doors were richly gilded, and here and there are still to be seen bits of the original gilding, but the present colourisation of the doors is that of bronze.

A matter discussed in these last years is the cause which might have destroyed the ancient gilding, and a very conscientious student declares that in modern times the doors were given a coat of paint. This statement, denied at first, has at length been admitted; for documents have been found which confirm the story that the doors of the Florentine Baptistery did receive a coating of bronze-coloured paint; so we should be grateful to those who have made moulds of these doors that we are able to-day to see traces of gold on Ghiberti's work, for the material used in making the moulds tore away the bronze paint but left the gilding.

Ghiberti's second door exerted a very marked influence throughout Italy, and the monumental bronze door of the basilica of St. Peter's at Rome, ordered by Pope Eugenius IV. from the Florentine architect and sculptor Pietro Averulino, called "Il Filarete" (died 1465?), follows the theme of Ghiberti's second door; so, too, does the little bronze door—a very pretty bit of sculpture—with which Jacopo Sansovino, about 1540, decorated the entrance to the sacristy of St. Mark's at Venice. As for the door at Rome, it is in merit far beneath what one might expect when account is taken of the fact that it was intended for the noblest temple of the Christian religion.

The bronze door of the Castle Nuovo at Naples—very remarkable from the historic point of view—dates from 1462-68, and the doors of the north sacristy of the Cathedral of Florence, executed by Luca della Robbia, between 1447 and 1474 (originally ordered in 1437 from Donatello).

As a sample of the transition between the Renaissance and the work of the Barocco period we have the bronze doors at the main entrance to the Cathedral of Pisa. Here we perceive an effort of fancy which aims at an independence wholly unknown to the artists of the "high Renaissance." The storeyed doors are generally attributed to John of Bologna, or "Giambologna," the dean of the craft, to whom Italy owes a quantity of fountains. But the doors were modelled by several artists of his school. Moreover, the architectural design cannot be credited to the master, but should be attributed to Raffaello Pagni. This makes it apparent that an important series of sculptures at the end of the sixteenth century were carried out by a group of sculptors most of whom had been almost wholly lost sight of.

Builders' Notes.

The Building Trades Exhibition will be held this year from June 13th to June 20th, as usual at the Agricultural Hall, Islington.

The Hathern Station Brick and Terra-Cotta Co., of Loughborough, has been turned into a limited company as from January 1st, 1903. The business will be carried on under precisely the same management as before.

The Fatal Accident to a Liverpool Contractor: Inquest.—The Liverpool City coroner held an inquest last week on the body of John Hayward, aged 62, builder and general contractor, of Liverpool, who was recently killed by an electric car in that city whilst on a bicycle. The jury returned a verdict of "Accidental death."

Messrs. Moorwood, Sons & Co., Ltd., of Harleston Iron Works, Sheffield, have sent us a copy of their diary and catalogue combined. The idea is a good one, as the pages of the catalogue are interspersed between those of the diary, to the benefit of the former and with no disadvantage to the latter. Messrs. Moorwood are issuing 1,000 of these diaries, and will be glad to send a copy to any readers who are buyers of their goods.

Rural By-laws.—"Not long ago," says a correspondent of the "Essex County Chronicle," "I bought some of the most ruinous cottages. One of the worst of these, of mud and thatch, with those low ground-floor rooms, I altered by taking off the thatch, adding a timber-built upper storey and covering the roof with tiles. The family living in it had now at last a chance of comfort. The District Council, however, called upon me to pull down the house, as offending their laws. I am forbidden even to built a lean-to wood-shed in connection with a brick cottage."

Building Trade Failures during 1902.—The supplement of "Kemp's Mercantile Gazette" for to-day gives an abstract of the failures and bills of sale during the past year. We note that in England and Wales there were 620 bankruptcies in the building and timber trades as compared with 564 in 1901; 452 deeds of arrangement as against 451; and 487 bills of sale as against 496. The "gazetted" failures in the building and timber trades throughout the United Kingdom were 721 during 1902, as compared with 671 in 1901, 875 in 1900, 748 in 1899 and 632 in 1898.

Registered Plumbers.—At a meeting of Registered Plumbers (Masters and Operatives) held at the Memorial Hall, London, last week, the following were elected to fill the vacancies in that section of the Registration Committee which represents directly the registered plumbers of London and district: —Masters: W. E. Bone, W. C. Clegg, G. B. Davis, J. Hume, J. Knight, F. Nichols, S. S. Hellyer, C. Parks, T. L. Pitt. Operatives: F. Brown, J. W. Clarke, C. Dean, J. A. Mills, R. A. Nurse, G. W. Stacey, G. Taylor. The remaining sections of the committee are directly elected to represent the London Society of Master Plumbers, London Lodges of the Operative Plumbers, and the sanitary and professional bodies concerned in the plumbers' registration system in the public interest.

ARCHITECTURAL EDUCATION IN GERMANY.

The Course at a Technical High School.

THE usual requirement for admission to a German technical high school is a certificate showing that the student has completed his course at a "gymnasium" and has passed the graduating examination. This admits the holder to any university in the country. Foreigners are admitted if they can show that they have pursued a course of study in their own country approximately equivalent to that of a "gymnasium," but they are not allowed to take the Government examinations.

Anyone who wishes to take up some course or separate subject at the *Hochschule*, but is not able to fulfil the requirements for admission as a student, may be admitted as a *Hospitant*, or guest, simply attending the lectures, but not receiving any diploma at the end of his course.

The course occupies four years, and leads, for those who wish to enter the Government service, to the title of *Bauführer*, or "Director of Building," and, since October, 1899, also to the degree of "Doctor of Engineering." Those who do not enter the service of the Government, but have successfully completed their four years' course, receive a diploma to that effect.

The first two years are devoted almost entirely to theoretical subjects, or, at any rate, to subjects which do not pertain directly to architecture, but which it is well for an architect to know something about.

The subjects taught during each term are as follows:—

Winter Term: First Year.

This is the first term of the first year (from the middle of October to the middle of April):—

Differential and Integral Calculus.—(5 hours' lecture: 1 hour's recitation.)

Analytical Geometry.—(2 hours' lecture.)

Descriptive Geometry.—(3 hours' lecture: 6 hours' drawing.)

Mechanics.—(3½ hours' lecture: ½ hour's recitation.)

Construction (Masonry and Carpentry).—(3 hours' lecture: 4 hours' drawing.)

Architectural Drawing.—(3 hours.) Instruction here consists of copying architectural subjects in different mediums—pencil, charcoal, pen and brush, so as to become familiar with the handling of different materials.

Elements of Mineralogy.—(2 hours' lecture: 1 hour's recitation.)

Experimental Physics.—Mechanics, heat, acoustics and optics. (4 hours' lecture.)

The Summer Term

is shorter than the first, lasting from the middle of April to the end of July. During this time, in the first year, the following curriculum is prescribed:—

Differential and Integral Calculus.—(3 hours' lecture: 1 hour's recitation.)

Descriptive Geometry.—(3 hours' lecture: 6 hours' drawing.)

Mechanics.—(7 hours' lecture: 1 hour's recitation.)

Construction.—Foundations; walls and supports of wood, stone and iron; stairs and elevators of stone, wood and iron. (2 hours' lecture: 4 hours' drawing.)

Architectural Drawing.—(6 hours.) Devoted to the same subjects as during the winter term.

Elements of Geology.—(4 hours' lecture.)

Elements of Chemistry.—(6 hours' lecture.)

There is no summer work prescribed, and, therefore, none done. The drawing-rooms are left open for the convenience of the students who have back-work to make up. There are usually plenty of them.

During the Easter and Whitsuntide vacations, excursions (headed by some of the professors) are undertaken, places of special architectural interest being selected. These expeditions usually last about ten days.

The winter's work in the second year consists of 51 hours a week: 26 devoted to lectures and the other 25 to recitations and drawing. During this year the student gets to know a little more about architecture itself, but most of the subjects are still very theoretical and rather auxiliaries of architecture than architecture itself.

Here is the list of subjects taught during

The Second Year:—

Mechanics of Elasticity.—(5 hours' lecture: 1 hour's recitation.)

Graphical Statics.—(1 hour's lecture.)

Study of the Forms and History of Ancient Architecture.—(3 hours' lecture: 6 hours' drawing.) This course also includes a careful and detailed study of the Orders, the copying of the best examples of ancient architecture, and one large and carefully executed design in either the Greek or Roman style.

Ancient Ornament.—(2 hours' lecture: 2 hours' drawing.)

History of Ancient Art.—(3 hours' lecture.)

Construction.—(2 hours' lecture: 4 hours' drawing.

Architectural Building.—(1 hour's lecture.)

Modelling.—(4 hours.)

Figure-drawing from Casts.—(6 hours.)

Elements of Civil Engineering.—(3 hours' lecture.)

Elements of Surveying.—(2 hours' lecture.)

Technology of Building.—(3 hours' lecture.) By this is meant instruction in the manufacture of bricks, plate-glass, mining, casting of metals, and so on, the lecture being illustrated by the inspection of factories and plants in operation.

The summer term has 49 hours a week, of which 25 are taken up by lectures and 24 by exercises. The subjects are almost identical with those of the winter session. The lectures on the "History of Ancient Architecture" are replaced by others on "Romanesque Architecture"; likewise, those on "Ancient Art" by others on the "Art of the Middle Ages." However, the drawing and designing of the course in ancient architecture is kept up. With

The Third Year

the real architectural work begins. All the preparatory work is accomplished, and now the students are first acquainted with the various styles of architecture and with the principles of design.

A few large problems are very carefully worked out, with a couple of smaller ones interspersed. The styles in which these designs are to be carried out are usually prescribed, the idea being to make the student thoroughly familiar with the forms and ornaments of all the historic styles. Having thus become conversant with the historical development of each style, and having tested its applicability to practical design, he may then accept, modify or ignore them in his later work, as he may see fit.

This system of studying each style separately from the design point of view is carried so far in Germany that, for their Gothic and Romanesque year, many students will visit a *Hochschule* where some professor who has made these styles his specialty has charge of the course, and for their Renaissance year will go to some other *Hochschule* where a master of that style holds his lectures.

The programme for the winter of the third year is as follows:—

Planning of Dwellings and Public Buildings.—(2 hours' lecture.)

History of Renaissance Architecture.—(2 hours' lecture.)

Designing and Detailing of Dwellings.—(1 hours' lecture; 5 hours' drawing). Besides instruction in the designing of dwellings, this course includes the making of working drawings and full-sized details.

Mediæval Ornament.—(2 hours' lecture: 2 hours' drawing.)

Designing in the Early Christian and Romanesque Styles.—(3 hours' drawing.) This includes sketching and careful working-out of a problem from a given programme, also the making of perspectives from drawings and also from nature.

History of Gothic Architecture.—(3 hours' lecture.)

History of Renaissance and Modern Art.—(3 hours' lecture.)

Arrangement and Planning of Buildings.—(2 hours' lecture: 3 hours' drawing.) This course considers the treatment of buildings of every class.

Landscape-drawing and Water-colouring.—(2 hours' drawing.)

Life Class.—(6 hours' drawing.)

The only difference between the winter and summer terms is that during the winter the course of lectures on machinery takes the place of the 2 hours a week devoted to landscape-drawing and water-colouring.

Of the 35 hours a week of

The Fourth Year's Winter Term

24 are devoted to design, so that the absence of design from the first two years of the course is made good to a certain extent in the last year. During this last year the following subjects are taken up:—

Renaissance Design.—(6 hours' drawing.)

Monumental Buildings and Laying-out of Cities.—(1 hour's lecture: 4 hours' drawing.) In connection with this course a series of 5-hour sketch-problems is given out, subjected later to a comparative criticism.

History of the Useful and Decorative Arts.—(2 hours' lecture.)

Interiors with Coloured Decorations.—(5 hours' drawing.

Designing of Public Buildings in the Styles of the Middle Ages.—(2 hours' lecture: 9 hours' drawing.

Lighting, Heating and Ventilation.—(3 hours' lecture.)

Elements of Engine-building.—(3 hours' lecture.)

The student who has successfully completed this course is deemed ripe to begin his existence as an architect. To those who have passed the Government examinations, position and a future are assured. This brings one to the subject of examinations.

At the end of every term each student may take an examination in any subject in which he has registered. This is, however, entirely optional on the part of the students, and, as a rule, but few avail themselves of this privilege. For the students of architecture are no more prone than others to go to the trouble of preparing for an examination which is not obligatory and is not required for graduation. The real object of these examinations is to give those students who, for some reason, do not intend to take the regular prescribed examinations a chance to find out how much or how little they have learned during the term.

There are

Two Distinct Types of Examinations

—one the *Staatsprüfung*, or Government examination, the other the *Diplomprüfung*, or diploma examination. The subjects required are the same in both cases. The only difference between the two, as far as the examination itself is concerned, is that the one is held by an Examination Board appointed directly by the German Government, whereas the other is conducted by officers of the school. Whoever successfully passes the Government examinations receives the title of *Regierungsbauführer*, or "Government Director of Building," and can enter the Government service if he so wishes. As we have already seen, only those who have completed a nine years' course at a German

gymnasium are entitled to take this examination. Naturally, all students who have fulfilled these requirements take the Government examination in preference to the other, if only for the sake of the title, even though they do not intend to enter the Government service. There are many of this class. For although the Government service offers a sure berth and a regular salary, and also a pension after retirement, the conditions are so unfavourable that but few are willing to undertake it.

The young *Bauführer* has to give the first year or year and a half of his services to the Government without receiving any remuneration whatever. Before becoming a *Baumeister*, the next rung of the Government ladder, an exceedingly difficult examination requiring a full year of preparation must be passed. The *Baumeister* receives a fairly good salary, and most who have reached this stage stick there till they are middle-aged men, when, if they are fortunate, they may be appointed *Baurath*. In spite of the fact that these unfavourable conditions have led to a great scarcity of Government architects, the German Government has till now refused to improve them, but will surely be forced to do so. Under existing circumstances, only those men who have not enough confidence in their own ability to hope for success in their battle with the world are apt to enter the Government service. This naturally leads to a deterioration of the work done for the Government and a change is sure to be made, and made soon.

The student who passes the other examination receives a diploma from the *Hochschule* to that effect. The purpose of these diplomas is to give the students who cannot take the Government examination an opportunity of proving that they have successfully completed the entire course in their special subject. As the same subjects are required for the Government and diploma examinations, it will only be necessary to describe one of them.

The Diploma Examination.

This examination is divided into two parts—Preliminary and Final.

The Preliminary Examination is taken at the end of the first two years, and covers all the subjects taught during that time. It is usually held in the autumn, in order to give the students ample time to prepare for it during the summer months. Before being admitted to the examination, the student has to hand in all the drawings he has done during the two years. These are considered by the Examination Board, and, if they are found satisfactory, the student is allowed to take part in the examination.

Drawings covering the following subjects are required: (1) Descriptive Geometry; (2) graphical statics; (3) construction; (4) agricultural building; (5) agricultural, landscape and figure drawing; (6) forms of Greek and Roman architecture; (7) surveying.

The following are the subjects required for the Preliminary Examination (where several subjects are brought under one head, it means that the examination in them is held at the same time by a single professor):—(1) Elements of physics; (2) elements of chemistry, mineralogy and geology; (3) pure mathematics: (*a*) trigonometry, plane and solid analytical geometry; (*b*) differential and integral calculus; (4) descriptive geometry; (5) mechanics, mechanics of elasticity, hydraulics and graphic statics; (6) surveying; (7) construction and building materials; (8) agricultural building; (9) history of Greek and Roman architecture; (10) technology of building.

For the Final Examination this is the list of drawings required, and, following it, the examination subjects:—

Drawings.—(1) Early Christian and Romanesque design; (2) Gothic design; (3) Renaissance design; (4) ornament; (5) water-colouring; (6) interiors with coloured decoration; (7) designs and details of dwellings; (8) designs of public buildings; (9) monumental buildings.

Examination Subjects.—(1) Statical calculation of constructions; (2) elements of engine-building; (3) forms of early Christian and Romanesque architecture; (4) forms of Gothic architecture; (5) forms of Renaissance architecture; (6) arrangement and planning of buildings; (7) estimates and specifications.

A thesis design, for which two months are allowed, is required. Admission to the Final Examination depends upon the acceptance or rejection of this design.

Most of these examinations are oral. In the mathematical subjects they are partly written, partly oral. Naturally, drawing plays a large part in them. The examination in each subject lasts either an hour or an hour and a half, and, usually, three students are examined at a time.

There exists a very strange custom at these examinations: every student wears his full-dress suit and white gloves (of course the white gloves are removed when it comes to writing).

Looking back at the work here recorded it is quite apparent that the course in architecture at a German *Hochschule* is a very thorough one. Anyone who has gone through this course carefully, and has worked for himself as well as for the examinations, has laid by a store of knowledge which is sure to be of the greatest service to him during his professional career. The one fault to be found with the course is that it is somewhat too theoretical.

The pith of the whole matter is simply this: A four years' course in architecture can never be completely satisfactory; so that all who can possibly do so journey to Paris to complete their studies at the École des Beaux-Arts.

Masters and Men.

Work Abroad: The new South African Colonies.—The January circulars of the Emigrants' Information Office and the annual editions of the penny handbooks show the present prospects of emigration. There is very little demand for operatives in the Australian colonies, but this is the busy time of the year in New Zealand, and skilled mechanics and others with a little money have no difficulty in finding employment there. In Cape Colony there is a good demand for skilled mechanics, especially those in the building trades, in the inland towns except Kimberley, but not at Cape Town or other towns on the coast, where a great many are out of work. In Natal a great many skilled artisans, more especially carpenters and those in the building trades, have recently arrived, so that those going now do so at their own risk of finding employment. Permits are still required by those proceeding to the Transvaal and Orange River Colony; they are not issued in this country, but must be applied for at the Permit Office at the port in South Africa at which the emigrant lands. Application forms may be obtained at the Emigrants' Information Office (which is situated in Broadway, Westminster) and elsewhere. The latest reports as to labour in the Transvaal are to the effect that the supply both at Johannesburg and Pretoria is more than sufficient, that a great many skilled mechanics and large numbers of unskilled labourers are unable to find work, and that a good deal of distress prevails. In the Orange River Colony there is a fluctuating demand for good carpenters, masons, fitters and painters. The cost of living is very high.

Keystones.

St. Bartholomew's, East Ham, is a new church by Messrs. Micklethwaite and Somers Clarke. Its cost was £10,500.

A Triptych of Joan of Arc has been completed by M. Jean Paul Laurens for the decoration of the new Hôtel de Ville at Tours. It will be exhibited at this year's Salon.

The Kaiser's Palace.—Last week the Kaiser invited a large party of sculptors and architects to the Royal Palace, in order to show them the alterations and decorations which have been carried out in the state apartments under his immediate direction.

Cretan Exploration.—It has been decided to set aside during the coming season the sum of £200 for the further excavation (under the guidance of Mr. Carr Bosanquet, director of the British School at Athens) of the site of Palaeokastro, on the eastern coast of Crete.

The Repairing of the Roof of Sherborne Abbey is to be taken in hand at once. At a meeting of the inhabitants of the town a report was presented by Mr. Bachelor, who stated that the principal defect was in the leadwork of the nave. It was decided to raise a fund for carrying out the necessary work.

Hastings' Victoria Memorial.—A bronze statue of Queen Victoria has been erected in Warrior Square by the people of Hastings and St. Leonards. The statue was executed in bronze by Mr. F. J. Williamson, private sculptor to the late Queen. It represents the Queen at the time of her first Jubilee, standing with her hands crossed, holding a sceptre.

The Spire of St. Michael's Church, Bishop's Stortford, of which church the Rev. F. W. Rhodes, father of Mr. Cecil Rhodes, was for many years vicar, has been for some time out of the perpendicular owing to heavy gales from the north-west. The fabric being greatly in jeopardy, the spire has been taken down. The iron finial, covered with copper, has been replaced with one of gunmetal. Its height has been lessened, a vane and globe being added.

Decorations for the Pantheon.—Some time back M. Détaille was commissioned by the French Government to paint three panels to decorate the choir of the Panthéon at Paris. The artist has now finished four sketches, each consisting of three large panels. The subjects chosen are "La Révolution de 1830," "Les Volontaires de 1792," "Les Funérailles de Damrémont" and "Le Chant du Départ." The designs are now on view in the Panthéon, and the authorities will shortly choose three of the *maquettes*.

A new Wing to Lynn Workhouse Infirmary has just been completed. The architects were Messrs. Charles Smith & Son, of Reading; the contractor for the general work was Mr. J. Cracknell, of Peterborough; and the engineering work for the heating apparatus has been executed by Messrs. Barford & Perkins, of Peterborough. The clerk of works was Mr. W. Hall, of Lynn. The cost of the building is between £3,500 and £3,600.

The Old Hall of New Inn.—Following the fate of many other old London buildings, the old hall of New Inn is doomed to destruction in the cause of modern improvements. A determined effort to save it was made by the Society for the Protection of Ancient Buildings, but the London County Council very regretfully found itself unable to sanction the wished-for preservation, for the hall stands on ground which will be needed in the formation of the new crescent leading from St. Clement Dane's Church to Wellington Street.

The death is announced of Mr. W. A. T. Arundell, C.S.I., M.S.A., consulting architect to the Government at Assam.

A new Baptist Chapel at Cromer was opened last week. Mr. A. F. Scott, of Norwich and Cromer, was the architect. Messrs. Girling & Smith, of Cromer, were the builders.

Messrs. Cope & Stewardson, the well-known architects of Philadelphia, are the successful competitors for Government offices for Columbia, U.S.A. The cost of building and site will be £300,000.

Chorley Technical School Competition.—The first premium has been awarded to Mr. Joseph Smith, Blackburn; the second to Messrs. Woodhouse & Willoughby, Manchester; and the third to Messrs. Briggs & Wolstenholme, Blackburn.

Hexham Abbey Church.—It has been decided to pull down the entire east end in order to erect a Lady chapel on the same site as was once occupied by a similar structure. The plans have been passed by the local Council, and the alteration is about to be begun, but there is considerable local condemnation of the project.

Calcutta's new City Architect. — This appointment has now been filled up by the selection of Mr. H. F. Bromley, A.R.I.B.A., late architect in the borough surveyor's department, Woolwich. There were thirty-two candidates. Mr. Bromley's pay is fixed at Rs. 750 (£75) per mensem, and his appointment is for five years. He will join the corporation on February 1st next.

Mr. J. F. Wadmore, A.R.I.B.A., died on Saturday, at Tonbridge, in his eighty-first year. He was a member of several archæological societies and was a former master of the Skinners' Company. He designed and erected the first chapel at Tonbridge School, of which for many years he was a governor. He was elected an Associate of the Royal Institute in 1865.

Ramsgate Technical Schools and Free Library Competition.—The first premium (£50) has been awarded to Mr. S. D. Adshead, of London; the second (£25) to Messrs. Cooper & Davis, London; and the third (£15) to Mr. Richard Holt, Liverpool. The two designs respectively by Messrs. Woodhouse & Willoughby, Manchester, and Mr. Henry V. Ashley, London, were commended. Seventy-two designs were sent in. Mr. Hare was the assessor.

"The Birmingham Magazine of Arts and Industries."—The last issue of this magazine (No. 5, published at 1, Stanley Place, Moseley, price 1s. nett) gives an account of the origin and progress of the Birmingham Architectural Association. The same issue contains some interesting illustrations of houses by Mr. de Lacy Aherne, Mr. W. H. Bidlake, Messrs. Buckland & Farmer, Messrs. Crouch & Butler and Mr. John A. Grew.

Proposed Extension of Galashiels Municipal Buildings.—A special meeting of the Galashiels Town Council was recently held to inspect the sketch plans of the proposed extension of the municipal buildings (Mr. John Hall, architect). The two plans which the Committee were most satisfied with were estimated to cost £4,100 and £4,250 respectively, inclusive of the architect's fees. The matter was adjourned.

Archæology in Asia Minor.—Archæological research in Asia Minor continues to make good progress, and appears likely to acquire fresh impetus in the near future. The Sultan, it is said, at the personal request of the German Emperor, has presented a new site there to Germany for the purpose of such research. The Americans are also busy at Nippur, and it is said that the British excavations on the site of Nineveh will be resumed very shortly.

Mr. James Hewitt, architect, of Liverpool, died on January 2nd.

At St. Matthew's Church, Cockington, a new chancel is being erected from designs by Messrs. Nicholson & Corlette.

Three new Bells at Stanstead Church, Essex, have been added in celebration of the Coronation. Messrs. Mears & Stainbank, of Whitechapel, cast the bells.

The Alipur Municipal District Offices, Calcutta, are to be demolished and replaced by more convenient buildings designed by Mr. E. Thornton, A.R.I.B.A., whose plans have been selected in public competition.

The Winter Exhibition at the Royal Academy (now open) includes a collection of casts, tracings, photographs and plans illustrating the wonderful discoveries of Dr. Arthur Evans in the palace of Knossos, Crete.

Mr. Aston Webb's "At Home" as president of the R.I.B.A. will be held at 9, Conduit Street on Monday, January 12th, from 8.30 to 11. A collection of drawings of the late Mr. J. F. Bentley will be on view during the evening.

The new Rhymney Cottage Hospital is now being erected from designs by Messrs. J. Llewellyn, Smith & Davies, of Aberdare. The contract has been let to Messrs. W. Williams & Son, of New Tredegar, at £2,285.

The great Glasgow Housing Scheme, for some reason yet to be made public, has been given up. Seven hundred workmen's dwellings were to be erected on the Kenney Hall Estate at a cost of £100,000. About seventy designs for the buildings were sent in and adjudicated upon, and this sudden decision to abandon the undertaking has caused both disappointment and astonishment.

A "William Morris" School.—A large upper grade school has just been completed by the Walthamstow School Board on land which formerly constituted part of the ground surrounding the residence of William Morris. Desiring to keep alive the association of the poet with the town, the school board has decided to seek the Board of Education's permission to name the new school "The William Morris School."

An Eleven-storeyed "Skyscraper" for Newcastle is being designed by Mr. B. F. Simpson, F.R.I.B.A., for Mr. Walter Willson, provision importer, and the present mayor of Gateshead. The drawings have been passed by the Town Improvement Committee, but the building operations are for the time being suspended as it has not yet been definitely decided whether the building will be erected on the site at present proposed for it.

Restoration of Clifford's Tower, York.—At last week's meeting of the Yorkshire County Committee reports were read from Mr. Basil Mott and Mr. J. T. Micklethwaite relating to the underpinning of Clifford's Tower and to the restoration of the tower itself, and the sub-committee who had the matter in hand were authorised to ask Mr. W. H. Brierley, of York, to co-operate with these gentlemen in the completion of the work, which has been so far successfully carried forward.

Another Large City Building.—Finsbury Circus, already possessing such blocks of offices as Salisbury House and Electra House, is to have another huge pile built on its borders. The new building will be the property of the London Wall Estates, Ltd., and will face Finsbury Circus, Blomfield Street, London Wall and West Street, and, including the ground floor, sub-ground floor and basement, will have ten floors. The cost will be more than £400,000, and the ground rent £18,000 per annum. There will be between 400 and 500 rooms.

R.I.B.A.—There was not a quorum for the meeting announced to be held on Monday evening, when the following elections were to have been made:—As Fellows: Mr. T. E. Eccles (Liverpool) and Mr. W. C. Ralph (Wigan). As Associates: Mr. A. L. Holder (London), Mr. H. Moger (London) and Mr. J. M. Ross (London).

A new Church at Malvern is being built from designs by Mr. W. J. Tapper, of London. It will consist of nave and choir capable of accommodating a congregation of about 400. The dimensions of the nave are 27ft. by 65ft., with a height of 35ft. At the west end a small tower is to be built containing a baptistery, organ-chamber and a belfry in its three successive stages. Externally, on the western side of the church will be a sculptured representation of "The Ascension." Guiting stone is to be used for the designs externally and Farleigh Down internally, the plain surfaces being of brick, plastered. The roofs are to be covered with stone slates. Messrs. Stephens, Bastow & Co., of Bristol, are the builders.

Engineering Notes.

A Handy Pocket Diary for 1903, bound in red leather, has just been issued by Messrs. Dargue, Griffiths & Co., Ltd., warming, ventilating and domestic engineers, of 51, North John Street, Liverpool.

Great Improvements at Snow Hill Station, Birmingham, are proposed to be carried out at a cost of £300,000. The plans are being rapidly pushed forward by Mr. J. C. Inglis, the chief engineer of the Great Western Company.

The Woodside Homes, East Croydon, for the St. Olave's Union, are being ventilated by means of more than eighty of Shorland's patent exhaust roof ventilators, supplied by Messrs. E. H. Shorland & Brother, of Manchester.

A Pier and Promenade at Menai Bridge are being constructed from designs by Mr. Webster, C.E., architect of the Bangor Pier, at an estimated cost of £14,000. The contract for the pier (which will be 700ft. long) has been let to Messrs. Holmes & Co. for £5,949. Mr. Isaac Evans is the contractor for the promenade.

The Institution of Gas Engineers is the new title of the Incorporated Gas Institute and the Incorporated Institution of Gas Engineers, which have been dissolved for the purpose of forming a united society. The Institution has been duly registered, the offices being at 39, Victoria Street, Westminster. Mr. Walter T. Dunn is the secretary.

Water Power in Switzerland.—The municipal authorities of Zurich contemplate building a dam across the Sihl Valley, near Einsiedeln, so as to form a water area containing 96 million cubic metres of water. This would be led along a channel for nearly two miles, and would then flow through mains to the power station. It is estimated that the available water would yield from 55,000 h.p. to 60,000 h.p., and the expenditure on the works is calculated at £1,400,000.

The Cooper Hewitt Light has just been installed in the Westinghouse building in Norfolk Street, where it is attracting considerable attention. It is a most powerful electric light produced within a long glass vacuum tube having a bulb of mercury at at the bottom. The vapour thrown off by the mercury is rendered incandescent by the electricity and a light of intense power is thus obtained. The light, however, is of a bluish colour not pleasant to the eyes. In America these "light rods" are sometimes 12ft. long and 2in. in diameter.

Vacant Appointments.

[The dates given are those on which the application is to be sent in, and the name given is that of the person to apply to. In nearly every case the application has to be made on a special form, which can be obtained from the officials mentioned.]

January 10.

CROMPTON U.D.C.—Surveyor (state salary required). J. T. T. Clegg, clerk.

January 12.

WELLINGBOROUGH U.D.C.—Surveyor and engineer, £250. J. F. Parker, clerk.

January 14.

STOKE-ON-TRENT.—Temporary assistant in engineer's office, £91. A. Burton, A.M.I.C.E., town clerk.

January 15.

PETERHEAD, SCOTLAND.—Road surveyor, £200. P. Irvine, district clerk.

January 16.

NEWPORT, MON.—Clerk of works (state salary required). A. A. Newman, town clerk.

January 17.

LEICESTER CORPORATION.—General foreman of platelayers, 3½ guineas per week. E. G. Mawbey, engineer.

January 19.

POPLAR BOROUGH.—Clerk in surveyor's department, 35s. per week. Leonard Potts, town clerk.

ROCHDALE BOROUGH.—Assistant inspector of nuisances, 30s. per week. J. Leach, town clerk.

January 20.

CROYDON TOWN COUNCIL.—Surveyor's assistant, £120. Samuel Jacobs, acting town clerk.

GIBRALTAR.—Senior electrical engineer, £300. W. W. Copland, secretary and engineer, Gibraltar.

January 30.

BENARES, INDIA.—Assistant resident engineer, £320, rising; waterworks inspector, £160, rising. Chairman, Municipal Board, Benares.

No date.

BOMBAY CITY.—Executive engineer, Rs.1,200 monthly. W. Watson & Co., 7 Waterloo Place, London.

Coming Events.

Wednesday, Jan. 7.

LONDON INSTITUTION.—Rev. Canon Benham, D.D., F.S.A., on "Old London: Two Old Churches," 4 p.m.

ARCHITECTURAL ASSOCIATION (Discussion Section).—Mr. J. H. Pearson on "Some Points in Ancient Lights Practice," 7.30 p.m.

BUILDERS' FOREMEN AND CLERK OF WORKS INSTITUTION.—Ordinary meeting at 8 p.m.

THE DOVER INSTITUTE.—Mr. J. F. Duthoit on "Brasses," 8 p.m.

EDINBURGH ARCHITECTURAL ASSOCIATION.—Mr. A. Hunter Crawford on "The Building of a House"—I. 8 p.m.

NORTHERN ARCHITECTURAL ASSOCIATION.—Students' Evening.

Thursday, Jan. 8.

SOCIETY OF ANTIQUARIES OF LONDON.—Meeting at 8.30 p.m. Ballot for Election of Fellows.

CIVIL AND MECHANICAL ENGINEERS' SOCIETY.—Mr. A. Marshall Arter, A.M.I.C.E., on "Indicating High Speed Engines," 8 p.m.

MANCHESTER SOCIETY OF ARCHITECTS.—Mr. A. W. S. Crosse, F.R.I.B.A., on "Competitions," 7 p.m.

INSTITUTION OF ELECTRICAL ENGINEERS.—Mr. W. B. Esson on "Recent Electrical Design," and Mr. E. K. Scott on 'The Manufacture of Large Dynamos and Alternators," 8 p.m.

Friday, Jan. 9.

LONDON INSTITUTION.—Rev. Canon Benham on "Old London—3. Old People," 4 p.m.

GLASGOW AND WEST OF SCOTLAND TECHNICAL COLLEGE ARCHITECTURAL CRAFTSMEN'S SOCIETY.—Mr. G. F. Scott Elliott, M.A., B.Sc., on "The Minute Structure and Methods of Distinguishing the Species of Woods," 8 p.m.

ARCHITECTURAL ASSOCIATION.—Mr. Andrew Oliver on "Old London, being notes on Whitehall and the Strand," 7.30 p.m.

BIRMINGHAM ARCHITECTURAL ASSOCIATION.—Mr. Bedford Lemere on "Architectural Photography."

Saturday, Jan. 10.

GLASGOW AND WEST OF SCOTLAND TECHNICAL COLLEGE SCIENTIFIC SOCIETY.—Prof. T. Hudson Beare, B.Sc., M.I.C.E., on "Recent Developments in the Gas Engine and the Utilization of Blast Furnace Gases," 7.30 p.m.

Monday, Jan. 12.

SURVEYORS' INSTITUTION.—Mr. H. T. Scoble, F.S.I., on "Rural Drainage and Sewage Disposal," 8 p.m.

ROYAL PHILOSOPHICAL SOCIETY OF GLASGOW (Architectural Section).—Mr. David Murray, M.A., LL.D., on "The Architecture of Old Glasgow," 8 p.m.

Tuesday, Jan. 13.

INSTITUTION OF CIVIL ENGINEERS.—Mr. Henry Francis Joel, A.M.I.C.E., on "Electric Automobiles," 8 p.m.

Wednesday Jan. 14.

EDINBURGH ARCHITECTURAL ASSOCIATION (Associates' Section).—Mr. R. Traquair on "Scottish Domestic Detail," 8 p.m.

NORTHERN ARCHITECTURAL ASSOCIATION.—Mr. H. Cayley, M.A., A.R.I.B.A., on "Some Special Features of Somersetshire Churches," 7.30 p.m.

Tenders.

Information from accredited sources should be sent to "The Editor" at latest by noon on Monday if intended for publication in the following Wednesday's issue. Results of Tenders cannot be accepted unless they contain the name of the Architect or Surveyor for the work.

Addressed postcards on which lists of tenders may be stated will be sent post free on application to the Manager, BUILDERS' JOURNAL, Effingham House, Arundel Street, Strand, W.C.

Cardiff.—For the erection of "Douglas Buildings," Bute Docks, for Messrs. J. Rose & Co. Mr. Edgar G. C. Down, A.R.I.B.A., architect, 31 High Street, Cardiff:—

G. Beard	£2,397 0 0
David Davies	2,395 0 0
Lattey & Co., Ltd.	2,315 0 0
S. Wood (Bristol)	2,072 0 0
W. T. Morgan	2,050 0 0
W. Thomas & Co.	2,049 13 10
W. Symonds & Co.	1,999 0 0
E. R. Evans & Brothers	1,950 0 0
E. Turner & Sons	1,948 0 0
A. W. Cadwallader	1,900 0 0
Knox & Wells*	1,888 0 0

* Accepted.

Ipswich.—For the erection of four shops, Tavern Street, for Mr. Howells. Messrs. William Eade, F.R.I.B.A., and Edwin Thomas Johns, architects, Cornhill Chambers, Thoro'fare, Ipswich:—

V. A. Marriott	£2,875 0
S. Skerritt	2,844 11
F. Bennett	2,760 9
W. H. Death	2,639 0
E. Adams	2,601 0
E. G. Haggar	2,600 0
A. Sadler	2,519 0
Grimwood	2,500 0
H. I. Linzell	2,455 0
T. Parkington & Son*	2,222 0

* Accepted.

Ipswich.—For the erection of three villas, Gainsboro' Estate. Mr. H. Winkworth, architect, Hatton Court, Ipswich:—

Fred Bennett	£1,956 0 0
Haggar	1,850 0 0
H. Lurzell	1,825 0 0
Catchpole	1,680 0 0
W. Grayston	1,651 10 9
Death	1,593 0 0
T. Parkington & Son	1,595 0 0
Sadler	1,590 0 0
Bloomfield	1,590 0 0
Cooper & Haward*	1,470 0 0

* Accepted.

London, N.—For the erection of showroom, workshops, &c., for Mr. J. Joslin. Mr. F. D. Thomson, architect, Woodside Park, North Finchley, N.:—

Holliday & Son	£735 0
Peake	685 0
Pointing	659 0
Kerry & Son	651 0
Smith & Son	580 0
Oram	573 10

London, W.C.—For alterations and additions at 54 Doughty Street, W.C., for Colonel S. Sanderson. Mr. James Neale, F.S.A., architect, 10 Bloomsbury Square, W.C.:—

H. J. Toms	£1,398 15 3
R. E. Worsley & Co.	1,210 0 0
Smith & Norris*	1,097 18 0

* Accepted.

Shenley Hill (Herts).—Accepted for alterations and additions at Shenley Hill House, for Mr. F. W. R. Hore. Mr. James Neale, F.S.A., architect, 10 Bloomsbury Square, W.C.:—

T. Crossley & Son (Bromley)	£2,074
For Engine and Electric Light Installation.	
Buchanan & Curwen (London)	£650 0
J. O. Grant	636 0
C. E. Zimdars*	599 19

* Accepted.

Southampton.—For the erection of new assembly hall, Park Street, Shirley, for Messrs. Ocrases Brewery, Ltd. Mr. A. A. Barrett, F.S.I., architect, Southampton:—

Executors of W. Franklin	£2,336 0 0
F. Reeks	2,207 1 6
A. Wright & Son	2,200 0 0
Jenkin & Sons, Ltd.	2,185 0 0
H. J. Wood	2,184 0 0
Bagshaw & Son	2,178 1 6
A. Doggrell & Son	2,111 19 0
H. Stevens & Co.	2,097 0 0
H. Cawle*	2,078 0 0
J. Nichol	2,043 0 0
G. I. Britten	2,015 19 4
P. H. Jerram	1,997 3 1

* Accepted.

Street (Somerset).—For the supply and delivery of 9in., 4in., 5in. and 3in. cast-iron pipes for their new waterworks, for the Street Urban District Council. Mr. A. P. I. Cotterell, A.M.I.C.E., engineer, 28 Baldwin Street, Bristol:—

MacEwan & Co., Glasgow	£8,926 11 8
Smith & Marchant, Shepton Mallet	8,754 8 0
Wright & Son, Glastonbury	8,657 0 0
Cochrane & Co., Dudley	8,575 7 6
J. & R. Ritchie, Middlesbrough	8,562 5 0
J. & S. Roberts, West Bromwich	8,521 12 6
D. Parsons & Sons, Brierley Hill	8,021 7 6
Sheepbridge Iron Co., Chesterfield	7,975 19 6
A. G. Cloake,* 54 Holborn Viaduct, London	7,469 7 6
Mannesmann Tube Co., Landore, South Wales (3in., 4in. and 5in. only), about	2,601 0 0
Watson, Gow & Co., Glasgow (5in., 4in. and 3in. only), about	1,918 0 0

* Accepted.

Stowmarket.—For the erection of new business premises in Bury Street, for the Stowmarket Co-operative Society. Mr. Philip J. Turner, A.R.I.B.A., architect, 1 Vincent Square, London, S.W.:—

W. Murray's executors	£3,398
E. West	3,063
T. Parkington & Son	2,990
Scales & Robins*	2,985
A. Plummer (afterwards withdrawn)	2,358

* Accepted.

Ventnor (I.W.).—For the erection of an isolation hospital at Lowtherville, Undercliffe, for the Committee:—

J. G. & W. Joliffe, Bonchurch	£3,190
A. Sims, Ventnor	3,053

Walthamstow.—For new sorting office at Walthamstow, for H.M. Office of Works, &c.:—

Enness Brothers	£2,769	J. T. Kiddle & Son	£2,535
A. W. Robins	2,742	General Builders, Ltd.	2,496
A. E. Symes	2,638	J. Chessum & Sons	2,488
C. Dearing & Son	2,613	Snewin Brothers & Co.*	2,268
L. F. Lamplough	2,559		

* Accepted.

Current Market Prices.

FORAGE.

		£ s. d.	£ s. d.
Beans	per qr.	1 9 9	1 12 3
Clover, best	per load	4 10 0	5 0 0
Hay, best	do.	3 15 0	5 10 0
Sainfoin mixture	do.	3 15 0	4 15 0
Straw	do.	1 8 0	1 18 0

OILS AND PAINTS.

Castor Oil, French	per cwt.	1 3 11	—
Colza Oil, English	do.	1 4 9	—
Copperas	per ton	2 0 0	—
Lard Oil	per cwt.	2 13 0	2 14 0
Lead, white, ground, carbonate	do.	1 4 10	—
Do. red	do.	1 0 4½	
Linseed Oil, barrels	do.	1 4 3	—
Petroleum, American	per gal.	0 0 6	0 0 6½
Do. Russian	do.	0 0 4¼	0 0 4½
Pitch	per barrel	0 7 0	—
Shellac, orange	per cwt.	6 4 0	—
Soda, crystals	per ton	3 2 6	3 5 0
Tallow, Home Melt	per cwt.	1 10 0	1 11 0
Tar, Stockholm	per barrel	1 1 6	—
Turpentine	per cwt.	2 0 3	—

METALS.

Copper, sheet, strong	per ton	67 0 0	—
Iron, Staffs., bar	do.	6 5 0	8 10 0
Do. Galvanised Corrugated sheet	do.	11 0 0	11 10 0
Lead, pig, Soft Foreign	do	10 17 6	10 18 9
Do. do. English common brands	do.	11 1 3	—
Do. sheet, English 3lb. per sq. ft. and upwards	do.	13 10 0	—
Do. pipe	do.	14 0 0	—
Nails, cut clasp, 3in. to 6in.	per ton	9 5 0	—
Do. floor brads	do.	9 0 0	—
Steel, Staffs., Girders and Angles	do.	5 15 0	6 5 0
Do. do. Mild bars	do.	6 10 0	7 0 0
Tin, Foreign	do.	120 0 0	120 10 0
Do. English ingots	do.	122 0 0	122 10 0
Zinc, sheets, Silesian	do	24 0 0	—
Do. do. Vieille Montaigne	do.	24 0 0	—
Do. Spelter	do.	19 15 0	20 1 3

TIMBER.

SOFT WOODS.

Fir, Dantzic and Memel	per load	1 13 0	3 0 0
Pine, Quebec, Yellow	per load	5 5 0	6 5 0
Do. Pitch	do.	3 0 0	3 4 0
Laths, log, Dantzic	per fath.	4 10 0	5 10 0
Do. Petersburg	do.	8 10 0	—
Deals, Archangel 2nd & 1st	per P.Std.	10 5 0	15 5 0
Do. do. 4th & 3rd	do.	10 5 0	15 10 0
Do. do. unsorted	do.	5 12 6	6 10 0
Do. Riga	do.	6 15 0	12 10 0
Do. Petersburg 1st Yellow	do.	16 10 0	—
Deals, Petersburg 2nd Yell.	per P. Std.	9 0 0	17 5 0
Do. do. White	do.	18 15 0	11 10 0
Do. Swedish	do.	5 15 0	15 15 0
Do. White Sea	do.	12 15 0	15 5 0
Do. Quebec Pine, 1st	do.	17 15 0	18 5 0
Do. do. 2nd	do.	13 0 0	—
Do. do. 3rd &c.	do.	10 15 0	12 15 0
Do. Canadian Spruce 1st	do.	—	12 0 10
Do. do. 3rd & 2nd	do.	7 10 0	10 5 0
Do. New Brunswick	do.	7 15 0	8 0 0
Battens, all kinds	Per P. Std.	6 10 0	16 0 0
Flooring Boards 1in. prepared, 1st	per square	0 9 9	0 11 6
Do. 2nd	do	0 7 9	0 11 3
Do. 3rd &c.	do	0 7 3	9 9 0

HARD WOODS.

Ash, Quebec	per load	3 12 6	—
Birch, Quebec	do.	3 12 6	3 17 6
Box, Turkey	per ton	15 0 0	20 0 0
Cedar, Cuba	per ft. sup.	0 0 3¾	0 0 5
Do. Honduras	do.	0 0 4 3/16	—
Do. Tobasco	do.	0 0 4 3/16	—
Elm, Quebec	per load	4 0 0	5 2 6
Mahogany, Average Price for Cargo, Honduras	per ft. sup.	0 0 5 11/16	—
Do. African	do.	0 0 3 7/16	—
Do. St. Domingo	do.	0 0 3¼	0 0 6
Do. Tobasco	do.	0 0 4 21/32	—
Do. Cuba	do.	0 0 4¼	0 0 8 7/20
Oak, Dantzic and Memel	per load	3 5 0	3 15 0
Do. Quebec	do.	6 5 0	6 10 0

Complete List of Contracts Open.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDERS MAY BE OBTAINED.
	BUILDING:		
Jan. 8	Uxbridge—Building	Rural District Council	J. F. Stow, Surveyor, Corn Exchange, Uxbridge.
" 8	Halifax—Houses, &c.		L. Coates, Architect, Yorkshire Bank Chambers, Waterhouse St.
" 8	Weymouth—Public Convenience	Urban District Council	Borough Surveyor and Engineer, Market Street, Melcombe Regis.
" 8	York—Alterations, &c.	Corporation	A. Creer City Engineer, Guildhall, York.
" 9	Hull—Covered Market	Markets Committee	J. H. Hirst, City Architect, Town Hall, Hull.
" 9	Nelson, Lancs—Fire-clay Goods	Gas Committee	A. J. Hope, Engineer, Gasworks, Nelson.
" 12	Cromer—Electric Light Station	Urban District Council	O'Gorman & Cozens-Hardy. 82 Victoria Street. Westminster
" 10	Bargoed—Fifty Houses	Rhymney Valley Land and Building Co., Ltd.	G. Kenshole, Architect, Station Road, Bargoed.
" 12	Rothwell—School	School Board	W. E. Richardson, Architect, Rothwell.
" 12	Tylorstown Wales—Enlargement of Schools	Ystradyfodwg School Board	J. Rees, Architect, Hillside Cottage, Pentre.
" 12	Hertford—Hotel &c.	McMullen & Sons, Ltd	J. Farley, Old Cross, Hertford.
" 12	London, S.E.—Lime, Cement, &c.	Borough Council	W. Oxtoby, Borough Engineer, Town Hall, Camberwell, S.E.
" 13	Ipswich—Additions	Guardians	H. J. Wright, 4 Museum Street, Ipswich.
" 13	Ilkeston—Free Library	Corporation	Hunter & Woodhouse, Architects, Belper.
" 13	Plymouth—Lecture Table, &c.	School Board	E. C. Cook, 18 Princess Square, Plymouth.
" 13	Blackrock—Seventy-four Artizans' Dwellings	Urban District Council	F. C. Caldbeck, 2 St. Andrew Street, Dublin.
" 13	St. Minver, near Wadebridge—Church, &c.		Mrs. Progitt, Caretaker, Wesleyan School-room, Stoptide Rock, St. Minver.
" 14	London, N.E.—Extension of Boiler House	Guardians of Hackney Union	W. A. Finch, 76 Finsbury Pavement, E.C.
" 14	Waterford—Free Library	Joint Finance and Law and Free Library Committee.	A. E. Murray, 37 Dawson Street, Dublin.
" 15	Pentre, Glamorgan—Alterations, &c.	Building Committee	W. D. Morgan, Victoria Chambers, Pentre.
" 15	Manchester—Three pairs of Semi-detached Cottages	Guardians	Newcombe & Newcombe, 89 Pilgrim Street, Newcastle-upon-Tyne.
" 16	Canterbury—Repairs, &c.	Borough Asylum	W. J. Jennings, 4 St. Margaret's Street, Canterbury.
" 16	Water Fulford, near York—Asylum		A. Creer, Architect, Guildhall, York.
" 17	London, N.—Alterations, &c.	Urban District Council	H. T. Wakelam, Guildhall, Westminster, S.W.
" 19	Swansea—Stone Facing	Town Council	H. A. Dix, Manager, Cray Reservoir Works, Breconshire.
" 19	Wemyss Bay and Inverkip, Scotland—Station Buildings	Caledonian Railway Co.	Engineer, Buchanan Street, Glasgow.
" 19	Harelaw, Durham—Bridge	Weardale Rural District Council	G. W. Egglestone, Highway Surveyor, Stanhope.
" 20	London, N.E.—Dwellings	London County Council	Housing Section, Architect's Dept., 19 Charing Cross Rd., S.W.
" 20	Devizes—Ward	Lunatic Asylum	C. S. Adys, County Offices, Trowbridge.
" 22	Camborne, Cornwall—Offices and Fire Station	Urban District Council	S. Hill, Architect, Redruth.
" 22	Middleton, Lancs—Post Office		Stones & Stones, 10 Richmond Terrace, Blackburn.
" 26	Walthamstow—School, &c.	School Board	H. Prosser, Architect, School Board Offices, Walthamstow.
26	London, S.W.—Convenience	Borough Council	Surveyor's Office, 215 High Road, S.W.
No date	Batley—Stores	Co-operative Society, Ltd.	H. B. Buckley, 85 Commercial Street, Batley.
"	Whitchurch, Wales—Rebuilding	W. Hancock & Co., Ltd.	Teather & Wilson, Andrew's Buildings, Queen Street, Cardiff.
	ENGINEERING:		
Jan. 8	Nottingham—Bridge over Canal	Works and Ways Committee	A. Brown, City Engineer, Guildhall, Nottingham.
" 8	Swansea—Wiring. &c.	Harbour Trustees	T. Strick, Clerk, Harbour Offices, Swansea.
" 10	Downpatrick—Cooking Appliances	Lunatic Asylum Committee	Graeme-Watts & Tulloch, 77A Victoria Street, Belfast.
" 10	Newton-le-Willows, Lancs—Engines	Urban District Council	Town Hall, Earleston.
" 10	Ballinasloe, Ireland—Machinery, &c.	Committee	Asylum Offices, Ballinasloe.
" 10	Earlestown, Lancs—Engines	Urban District Council	Town Hall, Earlestown.
" 12	Yeadon, Yorks—Steam Roller	Urban District Council	N. Houlden, Surveyor, Town Hall, Yeadon.
" 13	Barking—Heater	Urban District Council	C. P. Dawson, Surveyor, Council Offices, Barking.
" 13	Oldham—Elevators and Conveyors	Electricity Committee	A. Andrew, Gas and Water Offices, Oldham.
" 13	Wanborough, near Swindon—Waterworks	Highworth R.D.C.	F. Redman, 24 Wood Street, Swindon.
" 14	Gilsland, Northumberland—Boring	Rural District Council	H. W. Taylor, St. Nicholas Chambers, Newcastle-on-Tyne.
" 14	Stoke-on-Trent—Electrical Plant	Corporation	P. J. S. Tiddeman, Borough Elec. Engr., Field Pl., Stoke upon-Trent.
" 14	Devonport—Septic Tanks, Filters, &c.	Town Council	J. F. Burns, 29 Ker Street, Devonport.
" 15	Egremont, Cheshire—Electrical Plant	Wallasey U.D.C.	J. H. Crowther, Engineer, Great Float, near Birkenhead.
" 15	Milton-next-Sittingbourne—Waterworks	Urban District Council	G. F. Deacon, 16 Great George Street, Westminster, S.W.
" 16	London, E.—Steam Dynamo	Stepney Borough Council	A. Wright, 27 Osborn Street, Whitechapel, E.
" 16	South Molton, Devon—Gasworks	Town Council	L. Riccard, Town Clerk, South Molton, Devon.
" 17	Colchester—Wiring	Committee of Hospital	Borough Electrical Engineer's Office, Stanwell Street, Colchester.
" 17	Wigan—Adit Driving	Corporation	T. L. Hughes, Waterworks Offices, Chapel Lane, Wigan.
" 18	Mit Ghamr, Egypt—Ironwork Head Sluice		Chef du Service Administratif, Cairo.
" 20	London, E.—Bridge Reconstruction	London County Council	Engineer's Department, County Hall, Spring Gardens, S.W.
" 20	Erith, Kent—Filth Screens, Hydraulic Engines, &c.	London County Council	Engineer's Department, County Hall, Spring Gardens, S.W.
" 20	Street, Somerset—Waterworks	Urban District Council	A. P. I. Cotterell, 28 Baldwin Street, Bristol.
" 20	Liverpool—Pumps, &c.		R. P. Allenby, 16 Cook Street, Liverpool.
" 20	Liverpool—Waterworks	Corporation	Water Engineer's Office, Municipal Buildings, Liverpool.
" 21	Hull—Cars	Corporation	A. E. White. City Engineer, Town Hall, Hull.
" 21	Wellington, New Zealand—Tramways, &c.	City Council	W. R. Wright, 3 Victoria Street, Westminster.
" 22	Ipswich—River Work, &c.	Corporation	W. Bantoft, Town Clerk, Town Hall, Ipswich.
" 24	Scrabster, Caithness, Scotland—Harbour Extension	Harbour Trustees	J. Barron, 1 Bonaccord Street, Aberdeen.
" 26	Aberdeen—Railway Widening	Caledonian Railway Co.	Company's Engineer, Buchanan Street Station, Glasgow.
Feb. 26	Bulawayo, Rhodesia—Electric Tramway	Municipal Council	Davis & Soper, 54 St. Mary Axe, E.C.
	FURNITURE:		
Jan. 8	Thornhill, Scotland—Furnishings	District Committee	J. R. Wilson, Joint District Clerk, Thornhill.
	IRON AND STEEL:		
Jan. 9	Southampton—Pipes and Castings	Corporation	W. Matthews. 18 French Street, Southampton.
" 12	London, S.E.—Stores	Camberwell Borough Council	W. Oxtoby, Borough Engineer, Town Hall, Camberwell, S.E.
" 13	Christiania—Steel Rails	Norwegian State Railways	Director of Norwegian State Railways, Christiania.
" 15	Ottawa—Rails		L. K. Jones, Secretary, Department of Railways, Canals, Ottawa.
" 15	Dublin—Steel Barges	Commissioners of Irish Lights	O. Armstrong, Irish Light's Office, D'Olier Street, Dublin.
" 20	Southall, Middlesex—Fencing and Gates	Urban District Council	R. Brown, Engineer, Public Offices, Southall.
" 24	Stockport—Rails, &c.	Tramways Committee	J. Atkinson, Borough Surveyor, Central Buildings, Stockport.
" 27	Hastings—Pipes	Corporation	P. H. Palmer, Waterworks Engineer, Town Hall, Hastings.
Feb. 6	Cape Town—Locks		Agent-General for Cape Colony, 100 Victoria Street, S W.
	PAINTING AND PLUMBING:		
Jan. 8	Windsor—Painting	Town Council	Borough Surveyor's Office, Alma Road, Windsor.
" 10	Hooley Hill, Manchester—Painting, &c.		T. R. H. Prestwich, 18 Martin Street, Hooley Hill, Manchester.
" 12	London, S.E.—White Lead, Paints, Oils, &c.	Camberwell Borough Council	W. Oxtoby, Borough Engineer, Town Hall, Camberwell, S.E
	ROADS AND CARTAGE:		
Jan. 8	London, S.E.—Tar Paving, &c.	Southwark Union Guardians	G. D. Stevenson, 13 and 14 King Street, Cheapside, E.C.
" 8	Southend-on-Sea—Granite	Corporation	E. J. Elford, Borough Surveyor, Southend.
" 8	Sutton, Surrey—Street Works	Urban District Council	C. C. Smith, Surveyor, Municipal Offices, Sutton.
" 8	Wortley—Road Improvement	Rural District Council	G. E. Beaumont, Council's Engineer, Grenoside, Sheffield.
" 10	Milford Haven—Stone	Urban District Council	T. H. Lewis, Clerk, Council Offices, Milford Haven.
" 10	Leeds—Paving, &c.	Corporation	City Engineer's Office, Municipal Buildings, Leeds.
" 10	Dollar, Scotland—Causewaying	Town Council	Town Clerk, Dollar.
" 10	Kirkcaldy—Streets, &c.	R. C. Munro-Fergusson	W. D. Song, C.E., Kirkcaldy.
" 12	London, S.E.—Materials and Cartage	Camberwell Borough Council	W. Oxtoby, Borough Engineer, Town Hall, Camberwell, S.E.
" 12	Sevenoaks—Street Works	Urban District Council	S. Towlson, Surveyor to the Council, Sevenoaks.
" 14	Lancaster—Road Materials, &c.	Corporation	Borough Surveyor's Office, Lancaster.
" 16	Cape Town—Cartage		Agent-General of the Colony, 100 Victoria Street, S.W.
" 19	London, N.W.—Private Improvements	Hendon U.D.C.	S. S. Grimley, Engineer, Council Offices, Hendon, N.W.
" 1	Hollingbourn, Maidstone—Materials	Rural District Council	H. J. Bracher, 33 Earl Street, Maidstone.
" 22	Castleford—Improvement Works	Urban District Council	W. Green, Surveyor, Council Offices, Castleford.
" 27	Capetown—Streets		Davis & Soper, 54 St. Mary Axe, E.C.
No date.	Margate—Materials	Corporation	E. A Borg, Borough Surveyor, Margate.

Complete List of Contracts Open — *continued.*

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDERS MAY BE OBTAINED.
	SANITARY:		
Jan. 9	Old Hill, Staffs—Scavenging	Rowley Regis U.D.C.	D. Wright, Clerk, Council Offices, Old Hill, Staffs.
„ 9	Ynyshir—Sewer	Rhondda Urban District Council	W. J. Jones, Surveyor, Council Offices, Pentre.
„ 10	Cresswell, near Chesterfield—Sewerage Works	Clown R.D.C.	E. Hazledine-Barber, Engineer, Hollin Hill, Clown, Chesterfield.
„ 10	Shalford, Guildford - Scavenging	Hambledon R.D.C.	F. Smallpiece, 138 High Street, Guildford.
„ 10	Downpatrick—Sewer	Rural District Council	Clerk's Office, Downpatrick.
„ 12	London, S.E.—Stoneware Pipes, Disinfectants, &c.	Camberwell Borough Council	W. Oxtoby, Borough Engineer, Town Hall, Camberwell, S.E.
„ 14	Devonport—Septic Tanks, Filters, &c.	Town Council	J. F. Burns, 29 Ker Street, Devonport.
„ 14	Bingley, Yorks—Scavenging	Urban District Council	A. Platts, Clerk, Town Hall, Bingley
„ 14	Kingswood, Bristol—Sewerage Works	Urban District Council	A. J. Saise, High Street, Kingswood
„ 20	Erith, Kent—Filth Screens, &c.	London County Council	Engineer's Department, County Hall, Spring Gardens, S.W.

List of Competitions Open.

DATE OF DELIVERY.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Jan. 15	Kingston-on-Thames—Cottage Homes for Children	£25, £15, £10.	J. Edgell, Clerk to Guardians, Coombe Lane, Kingston-on-Thames.
„ 20	Workington—Public Library	£25, £15, £10.	W. L. Eaglesfield, Borough Surveyor, Workington.
„ 31	Cape Town—University Buildings	£400, £200, £100.	Agent-General for the Cape of Good Hope, London.
„ 31	Hull—Town Hall Extension	£300, £200, £100.	E. Laverack, Town Clerk, Town Hall, Hull.
Feb. 10	Winchester—Recreation Ground	£75 and £25.	W. Bailey, Town Clerk, Guildhall, Winchester.
„ 13	Patras, Greece—Church	£400, £160, £80.	Committee for new Church of St. Andrew, Patras, Greece.
„ 20	Sutton Coldfield—Town Hall	£50, £30, £20.	W. A. H. Clarry, Borough Surveyor, Council House, Sutton Coldfield.
„ 28	Bridgwater—Appliances for Silt Disposal		W. T. Baker, Town Clerk, King Square, Bridgwater.
March 4	Wycombe—Town Hall, &c.	£105 and £26 5s.	T. J. Rushbrooke, 77 Easton Street, Wycombe.
„ 31	Hull—Extension of Town Hall	£300, £200, £100.	E. Laverack, Town Clerk, Town Hall, Hull.
„ 31	Castleford, Yorkshire - Public Library	£15, £10.	H. A. Broadbent, Clerk to Urban District Council, Castleford, Yorkshire.

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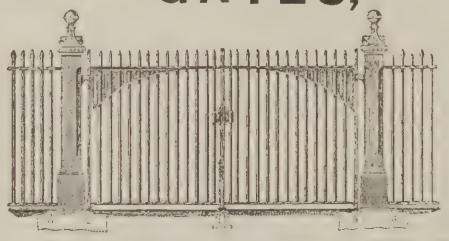
IRON RAILING, TREE GUARDS, &c.

HURDLES.

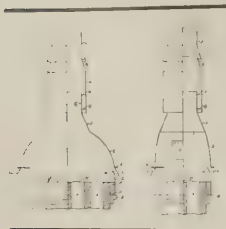


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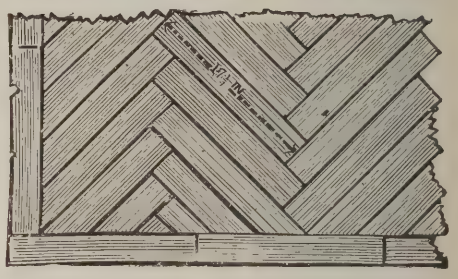
TO CONTRIBUTORS.

THE EDITOR will be pleased to consider any articles, illustrated or otherwise, dealing with old and new buildings, methods of construction, or other matter of an architectural character. He will also be glad to consider architectural photographs and sketches (the latter preferably in black and white) and measured drawings of work in this country or abroad. News items of interest to architects and builders will also be considered, provided the name and address of the sender are given; no notice will be taken of anonymous contributions. All communications should be addressed to the Editor of the BUILDERS' JOURNAL, 9, East Harding Street, E.C.

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NOTICE:—*The offices of this journal have been temporarily removed from Effingham House, Arundel Street, to 9, East Harding Street, E.C. (next to Messrs. Eyre & Spottiswoode, the King's Printers), to which new address all communications should be sent.*

An Architectural Causerie.

John Carter, Architect (1748-1817).

WE are liable to forget the great service to art performed by that sturdy anti-restorationist, John Carter, architect, artist and antiquary, by his vigorous protests in the "Gentleman's Magazine" during the latter half of the eighteenth century and the beginning of the nineteenth century against the senseless renovation and wanton destruction effected in the cathedrals and other ecclesiastical buildings in Great Britain. For at least half a century before Ruskin was born and for a still longer period before Pugin, Brandon, Dollman or Morris had called public attention to the necessity for preserving our ancient buildings, Carter had cried aloud against the negligence and barbarity with which these priceless relics of antiquity were subjected, and denounced with unsparing eloquence the ignorance and malevolence of architects with regard to their treatment. "He [Carter]," says Mr. G. L. Gomme, "practically stopped the worst of the intended work by his vigorous articles on Durham [Cathedral]; and he gradually introduced among architects themselves a change of opinion as to the manner in which old buildings were to be treated. Indignation could not be too strongly expressed on some of the matter he brought to light. Imagine for one moment the wanton barbarity in destroying the old chapter-house at Durham, with its stone seats, whereon ecclesiastics of many centuries had continuously sat, and building in its place a modern chamber, with a very elegant and fashionable assortment of luxurious furniture." But this was only a specimen of what was going on all round, and John Carter's voice was the only one raised up against it. He did enormous good, and he did it unselfishly, and in response to a sense of duty which he felt absolutely placed upon him by his position and taste. His name long remained a name to conjure with; and when the "Gentleman's Magazine" entered into the crusade (in 1830) against removing the screen of York Cathedral (recorded in the Notes, pp. 266-78) it invoked his name foremost among the champions against useless and misleading innovations. This is how Carter wrote with regard to the proposed removal of the spires of Lincoln Cathedral, which were taken down by the Dean and Chapter in 1807 on some frivolous pretext to avoid the expense of repair. The letter is dated from Partney in Lincolnshire, where Carter appears to have been staying, probably at Partney Hall, a country-house, and was evidently inspired by a recent survey of the doomed structures; and although made now nearly a century ago the writer's comments are almost as applicable to the present time as they were to the time when they were written: "The restoration and improvement of our cathedrals, as carried out at the present day, has been lamented in common by all men of science, as little better than a prelude to their total demolition. A blind zeal for improvement, founded on a false and vicious taste, has within the last fifty years done more to effect the destruction of the architecture of this island than the blind zeal for reformation which willed the destruction of popery and its remains effected in the whole seventeenth (sic) century. In the execution of these plans there seems to be a perverseness somewhat stronger than what is usually inherent in human nature, and which can arise from no other motive but a desire of annihilating those works which have stood the admiration of ages, to substitute the confused congestions of modern architects, and those, too, formed of materials in no one respect calculated to afford even a moderate degree of durability to their labours."



THE OLD TOWN HALL, GROOTE MARKT, HAARLEM.

Street Pavings. IT has been decided that a permanent committee shall be formed, consisting of one member each from the City of London, the City of Westminster and each metropolitan borough, to deal with the important question of street paving. The proposal is that the several engineers and surveyors in different parts of London shall periodically draw up reports on the wear and tear of the pavings in their districts and that these reports shall be considered by the central committee from time to time. This scheme has not been noticed much in the press, but is one likely to result in much good. Not only will some trustworthy and comparative information be secured as to the durability of the numerous pavings, but it is probable that the "street up" nuisance will be considerably checked. We trust that the scheme will be carried out with the success which it promises.

HAARLEM.

By EDWARD WALKER.

THE traveller in Holland in search of the picturesque may not, from first impressions, be altogether enamoured of Haarlem. He becomes hard to please after even a slight acquaintance with old Dutch towns, drowsy waterside villages, canals with their itinerant barges, and the old-world costume of the country-folk. And the traveller's first impressions will be still less favourable if he comes to Haarlem after a few short weeks among the glories of Dort, Leiden and Delft. One is apt to expect too much even in Holland, and Haarlem is now a thriving go-ahead place, so that much of the mediævalism so noticeable a characteristic of many of the other Dutch towns is here sacrificed to the demands of commerce. Haarlem, indeed, is becoming rapidly modernised. Some of the canals which formerly made the town a perfect maze of waterways have been filled in to form streets. The old-fashioned houses, tall and narrow—their brick fronts facing the canal and displaying a multitude of windows and those curious iron clamps which, wrought into numerals, signified the date of erection—have been ruthlessly swept away to make room for the odious modern Dutch villa and the electric tram.

Still, there is a great deal yet at Haarlem for the lover of art.

A fine prospect of the town is afforded as one approaches by rail from Leiden. The line lies between the Haarlemmer Meer and the North Sea dunes (the former, so recently as 1840, was part of a large inland sea, but is now a fine expanse of pasture-land studded with windmills, farm-houses and the indispensable black-and-white cow). Backed by a belt of woodland, looms the blue silhouette of the town, the elegant tower of the Groote Kerk forming a landmark for a great distance in this country of flat expanses and clear atmosphere. Seen in the spring-time, with a foreground of tulip gardens extending for miles, it is an ever-to-be-remembered sight.

Haarlem was a place of great importance far back in the Middle Ages, and played a noble part in the history of Holland during the rebellion against the Spaniard. It suffered a calamitous siege, probably without a parallel in the world's annals for the dauntless heroism of the citizens. Even the women took their part in the defence, which, though extending over seven months, proved ineffectual, the town being obliged to capitulate after awful privations. Then were 2,000 of the inhabitants executed by order of their conqueror, the son of the Duke of Alva. It was here, during the seventeenth century, flourished a famous school of architecture and painting. The many remarkable buildings at Haarlem testify to the eminence which architecture attained under Lieven de Key, master-mason, and the father of the early northern Renaissance. It was here also that Franz Hals lived and painted his greatest works, portraits of the civic dignitaries of Haarlem. In the Stadt Huis is the best collection of his masterpieces to be seen anywhere. He was the leading spirit of a renowned group of Dutch painters who worked at Haarlem at this time, amongst whom were the three Wouvermans, the Ostades, Hendrik Goltzius, and Ruysdael. In a quiet street by the riverside is an old house that has remained unchanged for two centuries, with nothing to distinguish it from its fellows save a tablet on the wall, which tells the reader it was the dwelling of the Wouvermans.

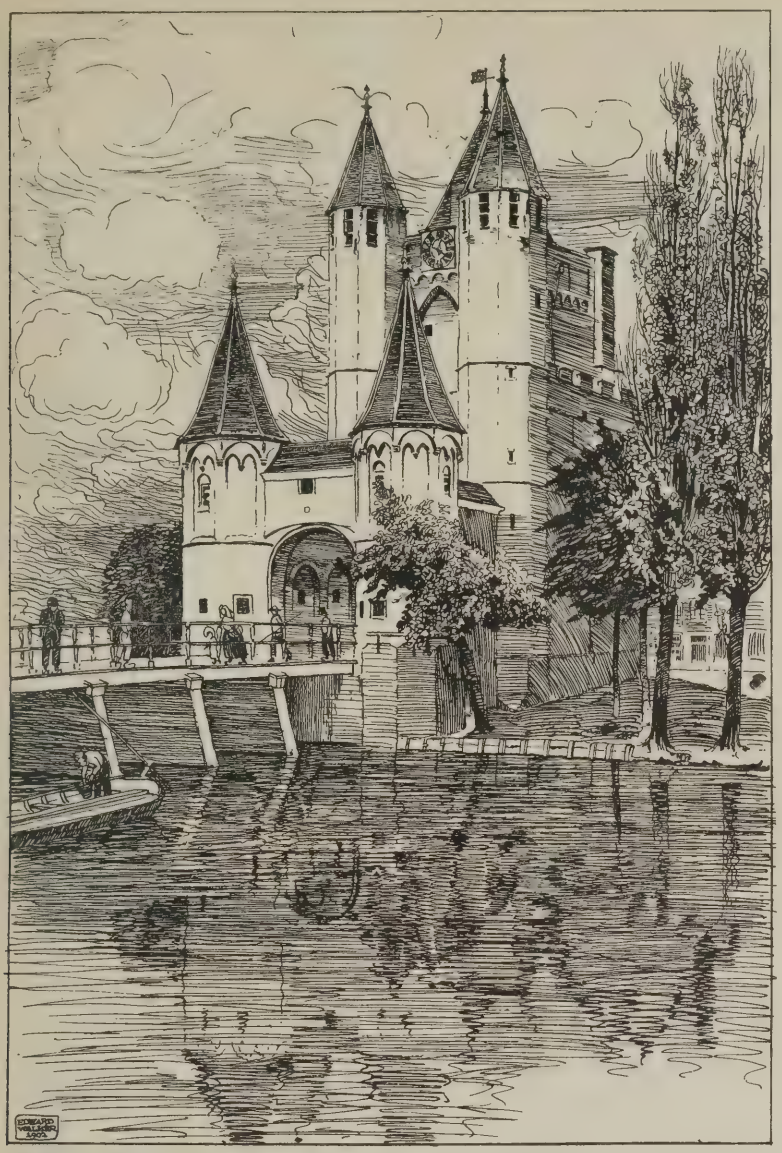
In the street-buildings of Haarlem it is interesting to trace the influence which Lieven de Key has exercised on present-day architecture in England. No one who has thought upon the subject will deny that some of the finest buildings erected during recent years by the foremost architects in England owe their origin in no slight degree to a careful and comprehensive study of the early Renaissance in the Netherlands, as exemplified in such buildings as the old Weigh House and the Vleeschhal at Haarlem. The latter (the meat-market) was built by Lieven de Key in 1602–3. It is bold and clever in design, obviously the product of a master-mind seeking to shake itself free from the trammels of hard-and-fast style. By some critics, doubtless, it may be thought somewhat coarse and heavy, but a careful scrutiny of the design, in plan and detail, must surely fill the cultured observer with admiration for its boldness, though admitting that it may often err on the side of over-elaboration and the grotesque. Rectangular in plan, the building is of brick and stone juxtaposed with admirable effect. A fine stone frieze runs under the main cornice, consisting of sturdy brackets alternating with medallions, from which jut out carved animals' heads, expressive of the purpose of the building. The mouldings are good, sound and effective, while the intelligent arrangement of brick and stone coursing, the steep-pitched roof with its quaint dormers (see sketch on p. 362), and the elegance of the general proportions, all unite to form probably the most interesting building of the early Renaissance in Northern Europe.

The Weigh House is a sandstone building of a totally different character to the Vleeschhal. It has little or no ornament, effect being gained by a combination of excellence in workmanship and beauty of proportion.

The chief centre of interest at Haarlem is the Groote Markt, or market-place, and here in the midst of a large open square stands the great church dedicated to St. Bavo. This is a huge structure and, as has been already said, is a very prominent feature in most picturesque aspects of the town, but though indispensably grand and imposing in this particular it can hardly be regarded as very interesting architecturally. When the writer was at Haarlem the church was undergoing extensive restoration externally, and should this be carried throughout the whole building as begun in the west front its appearance will be entirely altered, as a large amount of window-tracery and panelling was being introduced where had previously been simple brick wall or plain



IN THE QUADRANGLE, TEYLER'S HOSPITAL, HAARLEM.



THE AMSTERDAM GATE, HAARLEM.

mullions. The edifice dates from the seventeenth century and has a graceful tower 255ft. high, containing a very fine peal of bells. The eastern porch, with its traceried gable and panelled frieze, is curious and extremely pleasing in design. On the north side are some quaint and interesting additions in the manner of the early Renaissance. The interior of the church presents nothing exceptional, except, of course, the world-famous organ and a magnificent brazen screen made in 1510 and lavishly ornamented with grotesque figures and foliage.

Clustered around the market square are several buildings well deserving of attention. Close under the huge west front of the Groote Kerk is the Vleeschhal already noticed, and opposite, at the end of a narrow street, stands a curious building—the old town hall of Haarlem, with a façade crammed with windows—indeed, it would be an almost impossible task to introduce another. The sketch on p. 357 shows how cleverly the arrangement of the many openings is managed and the interest which is centred in the little balcony over the entrance, on to which the middle window opens and from which in former days proclamations were delivered. The high-pitched pyramidal roof and the peculiar balustrade of shaped wood are crowning features of a refined composition of earlier date than the Vleeschhal, but probably by the same author.

Though Haarlem was never a strongly-fortified town, even at the time of the siege, yet it undoubtedly possessed defensive walls. These have long since disappeared, and only the Amsterdam gate, one of the many posterns remains. This is a splendid specimen of its kind, and picturesque in the extreme. The sketch reproduced above shows the outer side of the gate overlooking the river.

On a quiet quay by the Spaarne, at Haarlem, stands an eighteenth-century building known as Teyler's Hospital. It is an almshouse for old ladies, and is peculiarly English in character and strongly reminiscent of Wren's work at Kensington Palace and Morden College, Blackheath. A fine portico of eight columns at the top of a flight of steps opens into a quadrangle tastefully laid out with bright flower-beds separated by neatly-kept gravel paths and containing a couple of magnificent elms. In the centre is a curious stone pump consisting of a tall fluted shaft with well-moulded base and capital set on a plain square footstone and surmounted by a sphere. Surrounding the quadrangle are the cottages, with arched porches and quaint dormers, and these are kept with all that neatness and tidiness so characteristic of the Dutch. Altogether the almshouse makes a beautiful picture with its restful tones of quiet red and green and the quaintly-clad figures of the old women.

There are one or two interesting churches at Haarlem beside the great church. The Nieu Kerk has a remarkable tower designed by Lieven de Key, somewhat on the lines of a Chinese pagoda—well worthy of study—and the Kinderkerk or Children's Church, its tower a smaller copy of that of the great church, is also noteworthy (see sketch on p. 361). Jan's Kerk (see next page) is more picturesque than architecturally interesting, though it possesses a well-designed front facing Jan Street.

In such a short description as this the writer can only take a cursory glance at that which appealed most to him during a recent visit. But the reader may be assured that Haarlem is an extremely interesting town, delightful both to the artist and the student of architecture.

Views and Reviews.

Builders' Estimates.

This book will be welcomed by all who desire to obtain a thorough and comprehensive knowledge of the essential principles on which the true values of building work must be based. The great differences which are seen in tenders submitted by experienced contractors show that the art of estimating does not yet approach, and, indeed, is not likely to attain to, the mathematical precision of an exact science. It is obvious that the capacity and individuality of the contractor must count for much in all matters of estimating. Superior methods of administration, organization and supervision, combined with ripe experience, shrewdness in buying, ample financial credit, and other similar advantages, will always enable some builders to tender for and profitably execute works at considerably less cost than others. But, beyond the personal element, there still remains the broad fact that many of the glaring discrepancies seen in builders' estimates are due to lack of accurate data at the moment of pricing, insufficient knowledge of the cost of materials and workmanship, or neglect of a systematic method of ascertaining the prime-cost value of the work required. The want of a compact and reliable handbook dealing with the principles and practice of estimating on these lines—something which shall be more than a mere price-book—has long been felt, and it is in this connection that Mr. Rea's work will be found of the greatest service.

The general plan of the book and the arrangement of the subject-matter are admirable. The first portion of the work contains a large amount of useful information on trade discounts, canal and railway rates, and other similar matters which directly influence the cost of building materials and works.

The different branches of the building trades, such as "excavator," "bricklayer," &c., are then fully dealt with. A separate chapter is devoted to each trade, which includes a very complete list of memoranda and prices, followed by an analysis showing how the cost of the principal items is arrived at. The trade memoranda and data are most conveniently grouped for estimating, so that any particular note required can be found without delay.

Considered as a price-book, many of the more important items are extremely low, even for cutting prices in keen competition, and do not represent ordinary current rates for substantial work in the London district. The London rates of wages for bricklayers, masons, carpenters and joiners are given as 10d. per hour, but as a matter of fact the current rates for these trades are from 10½d. to 11d. per hour. Plasterers wages are stated to be 10d. per hour, instead of 11d. to 1s., whilst labourers are receiving 7d., instead of 6d. per hour. Best red Fareham facing bricks at 61s., best blue Staffordshire facings at 48s., and Stourbridge firebricks at 55s. per thousand, are not adequate prices for materials delivered on London sites. The rates for brickwork in stone-lime mortar



JAN'S KERK, HAARLEM.

(1 to 2) at £13 10s., and brickwork in cement-mortar (1 to 2) at £14 16s. 1d. per rod, are insufficient for fair average brickwork in walls of ordinary buildings.

Turning to the analysis of brickwork, the author states that 45 hours of a bricklayer and labourer represent the average amount of labour per rod for ordinary buildings. We fear that very few London builders at the present time can confidently rely on anything approaching such a rate of progress, or are in the happy position of finding from experience that the actual prime-cost value of labour to brickwork is £3 per rod. It is, of course, inevitable in a book of this description that a large proportion of the information here brought together must be derived from other works on the same subject, but in all cases necessitating an analysis of cost it would have been better if the author had gone down to the bed-rock of actual and primary facts as deduced from an extended observation of present conditions, instead of accepting statements which possibly were accurate when originally made but which under existing circumstances do not properly apply. To illustrate our meaning, we find in the brickwork analysis that 4s. per rod is allowed for "use of scaffolding, erection and removal." This well-worn statement is common to nearly every price-book, and has apparently been copied from one to the other year after year, until from continued reiteration it becomes crystallized into a stereotyped formula. Thirty years ago the same price of 4s. per rod was in general use as a fair provision for scaffolding, and at that time it was probably a reasonable assumption for ordinary buildings. Scaffolders then received 5d. per hour, but the present rate is 7½d. per hour. The penalties connected with an Employers' Liability Act and a Workmen's Compensation Act were then unknown, so that light flimsy scaffoldings were much more common in those days than now. These facts and a glance at the substantial and securely-braced scaffolds to be seen in every part of the metropolis should be sufficient to show that the average prime-cost of scaffolding—including cartage to and from site, erection, use or depreciation, together with its ultimate removal—must necessarily be considerably greater to-day than it was three decades ago.

On comparing the analyses given for tiling and slating respectively, we notice that the cartage of 1,000 tiles (1 ton) from a London railway terminus to site is taken at 4s. 6d., with an addition of 1s. per mile for loading and unloading carts; but in the case of the slater, the cartage of a thousand (1,200) Countess slates (two tons) is priced at 2s. per mile, or 1s. per ton, whilst no allowance is made for unloading carts and stacking on site. Doubtless such inconsistencies will be eliminated in future editions.

The question of establishment charges—rent, rates, office expenses, stationery, salaries, &c.—becomes a serious element in a large builder's business, so that in any systematic or complete analysis of prime-cost value a fair proportion should be separately added to cover this necessary outlay, just as much as for any other item of expenditure. The author has scarcely given sufficient consideration to this factor in the different detailed analyses made of leading prices. We mention this matter because builders, like other men of business, look for a nett profit of 10 per cent. after payment of expenses; but in too many cases the prospective profit on a contract is entirely absorbed by heavy establishment charges, owing to no proper provision having been made in the original estimate of cost.

Under ordinary circumstances, the subject of estimating is highly technical and complex, but in Mr. Rea's book may be found a key to many of the difficulties with which it is surrounded. Taken as a whole the work forms a complete and exhaustive treatise on the theory and practice of estimating, and should be in the hands of all estimators. As a text-book and guide for the use of students it is especially valuable, whilst to the general builder and contractor it cannot but prove a most useful book of reference. The book is thoroughly well printed and bound, and is published at a remarkably low price.

"How to Estimate: being the analysis of builders' prices," by J. T. Rea, F.S.I., M.R.I.A.(I.). London: B. T Batsford, 94, High Holborn. Price 7s. 6d. nett.

Modern School Buildings.

This will undoubtedly prove of very great service to architects as a book of reference, and especially to those who are called upon to design school buildings. It is divided into three main parts—secondary education, elementary education and the hygiene of schools, with appendices, though the whole work is again divided and sub-divided most carefully. In dealing with secondary education, the author says (p. 11, paragraph 2): "The field covered is a very wide one, the term 'secondary' including at one end the great public schools, such as Eton, Harrow, Winchester, &c., and at the other the little country grammar schools and small private-adventure schools. . . ." The question of secondary education at the present day is one of great moment, and such a book as this is therefore most welcome. In this section the organization of schools is dealt with, mention being made of such schools as the City of London School, St. Paul's School, West Kensington, University College School, &c. This portion of the work also includes the curriculum of various schools. A chapter is devoted to the subject of secondary education in Germany and America. Further chapters deal with sites, aspect, accommodation, halls or assembly-rooms, staircases, corridors, entrances, &c. A large portion of Chapter VII. describes the design and arrangement of desks, the planning and height of classrooms, doors, fireplaces, movable partitions; and a most interesting section of this chapter speaks of the size of classes, with a comparison of the amount of superficial area allowed per head in Germany

and this country. The lighting of class-rooms, the size and position of windows, the colour of walls, artificial lighting—gas and electric—are dealt with at length. A chapter is given describing rooms for the teaching of natural science and art laboratories (chemical and physical), lecture-rooms, studios, &c. Chapters IX. and X. deal with secondary day-school buildings. These chapters will be found among the most uselul in the book, as schools of various types are illustrated ; in fact, the whole book is most profusely illustrated with reproductions of photographs, perspectives and plans. Most of the schools of note in England are fully described in these chapters, as well as some German, Swiss and American examples. Reference is made to cloak-rooms, principal's rooms, dining-rooms, libraries, museums, play-rooms, &c. Training colleges and pupil-teachers' schools are fully dealt with in Chapter XI.

We now come to the boarding schools, the first illustration being a fine double-page perspective drawing of Christ's Hospital School at Horsham, Sussex ; views and plans of the Royal Masonic School now in course of erection at Bushey are also given, together with a large amount of most useful information and a number of illustrations of other schools, including the Rhodean School at Brighton, Bedales School, and grammar schools in provincial towns. We, however, note that nothing whatever is said about Owens College, Manchester. Infirmaries and sanatoria are mentioned, although perhaps not so fully as they might have been. Gymnasia with their fittings are also dealt with. Useful portions of Chapter XVI. refer to the cost of schools and the care of school buildings.

Part 2 deals with elementary education, and fully describes the development of the modern type of elementary school, from the village school of, say, 1840 to the latest Board school. This section is very well illustrated, and in all respects thoroughly up to date. Various types of the London Board Schools, together with examples in Manchester, Birmingham, Edinburgh, &c., are fully explained. Illustrations are also given of elementary schools in Germany and America. Higher-grade elementary schools are described and fully illustrated in Chapter XX., a noticeable example being one at Scarborough. Village and poor-law schools, schools for *special* children (such as are mentally defective, deaf, blind and crippled), are also shown and described very clearly.

Part 3 concerns the hygiene of schools, and describes various schemes of ventilating and heating. Sanitation is fully dealt with, together with swimming baths, lavatories, &c. The appendices contain the building regulations of the Board of Education for elementary schools, schools for deaf and blind, manual instruction rooms, &c.

The get-up and printing of the book are alike creditable to the author and publisher, and we can recommend the book with confidence to our readers.

"Modern School Buildings: Elementary and Secondary," by Felix Clay, B.A., architect. London: B. T Batsford, 94, High Holborn. Price 25s. nett.



THE KINDERKERK, HAARLEM.

THE ARCHITECTURAL ASSOCIATION.

Old Whitehall and the Strand.

By ANDREW OLIVER, F.R.I.B.A.

A MEETING of the Architectural Association was held on Friday evening, the chair being occupied by Mr. Henry T. Hare, F.R.I.B.A. After the minutes had been read, Messrs. C. Stanley Peach, F.R.I.B.A., and R. Stephen Ayling, F.R.I.B.A., were elected members of the Association, and Mr. Walter F. Cave was re-instated. The following additional donations towards the new premises fund were announced :—Mr. E. P. Warren, £21 ; Mr. Gerald C. Horsley, £5 5s. ; Mr. W. H. Lever (2nd donation), £5 ; Mr. A. B. Botterill, £2 2s. ; Mr. Maurice B. Adams, £2 2s. ; Mr. W. J. N. Millard, £2 2s. ; Mr. A. A. Carder, £1 1s. ; Mr. T. F. Green, £1 1s. ; and L. Judge, £1 1s.

Mr. Andrew Oliver, F.R.I.B.A., then read a paper on Old Whitehall and the Strand. He said it was difficult to believe now that, as the poet Gay expressed it, on the river Thames—

> "There Essex's stately pile adorned the shore,
> There Cecil's, Bedford's, Villier's now no more."

Of all the palaces but two small fragments were left—the Chapel of the Savoy and the Banqueting House at Whitehall. The lecturer then went on to speak of Whitehall in the sixteenth and seventeenth centuries. At this period Whitehall consisted solely of the palace. In the eighteenth century were erected the Horse Guards and Dover House on the site of the Tilt Yard, the Treasury on that of the Cockpit. In the nineteenth century the Privy Council and Education Offices were erected on the old Tennis Court, and various other streets and private houses were erected during that time.

Mr. Oliver then briefly described the history of Whitehall. In 1606 the "old, rotten, slight builded Banqueting House," built by Queen Elizabeth, was removed and a new one built in the following year; but in 1619 this was destroyed by fire. Upon the site was erected the present building. The last of the old buildings disappeared on April 10th, 1691, when the whole of the building, with the exception of the Banqueting House, was burnt.

Six years later, in 1697, a second fire broke out. After this nothing was done to rebuild the palace. The banqueting-house is the only portion that was erected of the building designed by Inigo Jones. It was commenced in June, 1619, and completed in March, 1622.

the total cost being £14,940. The architect received £400.

The great painted ceiling by Reubens consists of three central compartments, and the same number, but smaller, on either side. It represents King James I. welcoming the beauties of Peace.

Mr. Oliver then dealt with Whitehall Palace. Its plan as it was in the reign of Charles II. shows a large rambling building extending from what is now Richmond Terrace, along the river to Great Scotland Yard, close to where the National Liberal Club now stands. It included on the north the Horse Guards, the Treasury and Downing Street. A gateway was placed at the south end of the Banqueting House, and another at the corner of Downing Street. The south side of the palace began with the Bowling Green, next to which was the Privy Garden. The front consisted of the Banqueting Hall, the Gate and Gate Terrace, and a long row of mean buildings. The Gate opened up on a series of three courts or quadrangles. In the first, called The Court, was situated the Banqueting House; opposite to this on the east side was the Great Hall or Presence Chamber, the Chapel and the private rooms of the king and queen. This part contained all that was left of old York House. Behind the Privy Garden was the Stone Gallery, which contained the Art Gallery and Library. Between the river and the Stone Gallery were the apartments of those connected with the Court. In the second court were the kitchen, pantry, cellars and several other apartments.

The river front of Whitehall consisted of a red-brick wall with six small turrets.

Mr. Oliver next passed to

The Strand.

It is to the seventeenth century that we owe nearly all of the streets that are at present to be found in the Strand and Covent Garden, and the Church of St. Clement Danes.

To the eighteenth century belong the churches of St. Martin and St. Mary-le-Strand. Southampton Street, which was made in 1704, on the site of Bedford House; the Adelphi, by the Brothers Adam; and Bow Street was prolonged to Long Acre, continuing the portion between Hart Street and Great Russell Street. In 1863 Garrick Street was made to connect Long Acre with Henrietta Street. Wellington Street was made to connect Bow Street, which originally ended at Great Russell Street, with Waterloo Bridge. The improvements at Trafalgar Square and those near St. Martin's Church were made during 1830-2; Northumberland Avenue in 1874; and the new street to Holborn was commenced in 1901. The Victoria Embankment was commenced in 1863 and completed in 1870.

St. Martin's Church was erected in 1721, when that which previously occupied the site was taken down. It was built by Gibbs. The first great change in the Strand was made when the new street was cut in prolongation of Pall Mall to St. Martin's Church, about the time when the National Gallery was commenced. Sir Charles Barry's idea for Trafalgar Square was different to what we see now. He intended a low flight of steps to lead up from the Square to the National Gallery. In place of the present fountains, which he wished to have much larger, his intention was to have had monuments to Wellington and Nelson.

The original Charing Cross was of wood, but later it was built in stone. The Cross itself was ordered to be taken down in 1643; the site is now occupied by the statue of Charles I.

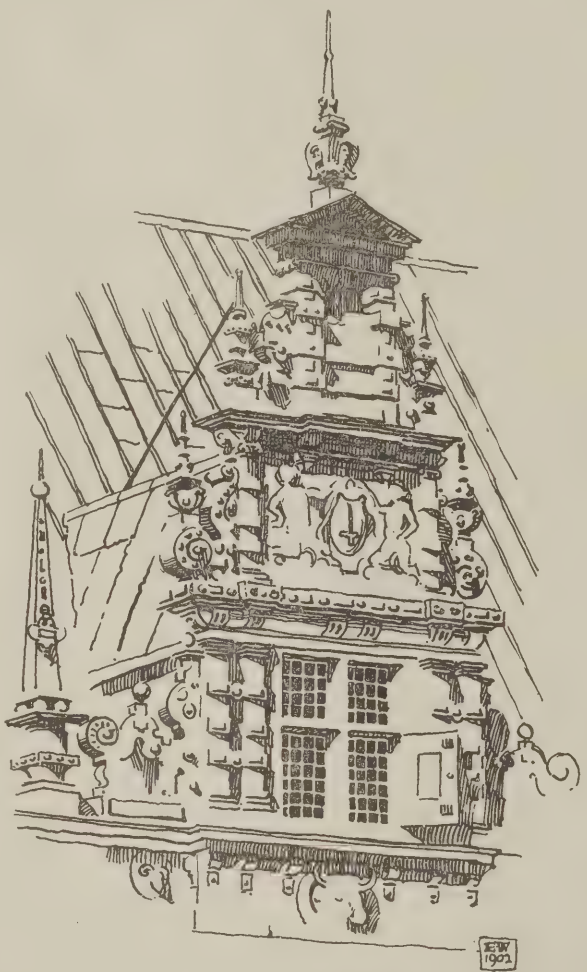
Mr. Oliver proceeded to deal with Northumberland House (pulled down in 1874, and its famous Percy lion placed on the top of Sion House, opposite Kew Gardens).

The river palaces that stretched from the Palace of Whitehall to Arundel House were next described.

Old Hungerford Market, which was destroyed in 1862 to make room for the Charing Cross Railway Station, was erected at the close of the seventeenth century on the site of Hungerford House, which was destroyed in 1669.

York House acquired its name from having been the residence of the Archbishops of York. The only portion now left is that known as the York Stairs Watergate.

The site of Durham House is now occupied by the Adelphi Terrace. It would appear



A DORMER OF THE VLEESCHHAL, HAARLEM.

to have been a castellated building, with a square tower at the east end. The main building showed a row of pointed arches. There was also a low square tower at the west end, together with a round tower, which was carried up above the parapet of the principal building. In 1608 a building called the New Exchange was erected on the site of the stables in the Strand.

Salisbury House, Worcester House and Savoy House were next referred to, after which Mr. Oliver dealt with Somerset House, which was commenced in 1547. The palace was much improved by the queen of James I., and Inigo Jones was employed to carry out the work as architect. The architect is given in Penant as being the celebrated John of Padua.

The Strand front of Somerset House consisted of a central gateway, with a bay over, in two storeys. On either side of the gateway were two windows, with pedimental heads and double bay windows with similar features. The courtyard front was in two storeys, and consisted of an arcade of nine arches, a bell-cot being placed on the roof. The gardens faced the Thames. These were laid out in the monotonous style of the period, so well described by Pope—

> "Grove nods to grove, each alley has its brother,
> And half the gardens just reflects the other."

As regards the architecture, quaint old Stow has the following: "I am extremely pleased with the front of Somerset House, as it affords us a view of the first dawning of taste in England, this being the only fabric which deviates from the Gothic or imitates the manner of the ancients. Here are columns, arches and cornices that appear to have some meaning. If proportions are neglected, if beauty is not understood, if there is in it a sharp mixture of barbarism and splendour, the mistakes admit of great alleviation." The old building was demolished in 1776 and Sir William Chambers was appointed the architect of the new edifice.

Arundel House, Essex House and Temple Bar were described, and then the lecturer went on to speak of Butcher Row and the old streets in the neighbourhood of the present Law Courts.

Coming to the church of St. Mary-le-Strand, he explained that the present church is the second, the first one having been pulled down to build Somerset House. This was the first church designed by Gibbs, or, as he puts it, "upon which I was employed, after my return from Italy." There was no steeple designed for it—only a small campanile or turret. A bell was to have been at the west end, and at the distance of 80ft. from the west front there was to be a column 250ft. high, intended to be erected in honour of Queen Anne, on the top of which her statue was to be placed . . . but the thought of erecting that monument being laid aside at the Queen's death, it was ordered to erect a steeple instead of the campanile, as first proposed. The site of the old Strand Cross is marked on the Ordnance map as being just within the porch of the present building, and this was afterwards the place where the Strand maypole was erected.

In conclusion the lecturer referred to Burleigh House, Bedford House and Covent Garden. The first market was erected in 1632 by the Earl of Bedford, the charter dating from 1671. The church of St Paul, designed by Inigo Jones, and erected between 1631 and 1638, was then, as now, the western side of the Garden, the southern side being formed by the blank wall of Bedford House. In an old print the market is shown as being fenced in. In the centre there was a Corinthian column with a sundial on the top (from an inscription it would appear to have been erected in 1686). The column stood upon a pedestal raised upon six steps. The capital supported a square stone, three sides of which served as sundials.

A discussion followed in which Messrs. R. Phené Spiers, W. Spiers, W. A. Pite and the president took part.

Insanitary Church Vaults.—In the course of restoring the chancel of the parish church of Portsmouth the vaults were opened and were found to be in such a shocking state that the medical officer of health ordered the closing of the building until sanitary conditions could be restored.

BUILDING CONSTRUCTION.—VI.

[By Our Special Contributor.]

(*Continued from p. 328, No. 412.*)

A FEW words on the subject of *grounds* before dealing with plastering. It is not at all unusual to manage a house of this class without grounds; architraves are prepared without the back moulding, they are fastened in position so that the most prominent face is in plane with the finished surface of the wall, and it is made use of as a ground; the only serious objection to this mode, so far as architrave grounds are concerned, is that it increases the interference between the plasterer and the joiner, increasing the likelihood of the joiner having to hurry up; resulting, probably, in unsatisfactory fitting of jamb-linings to architraves. If regular grounds are put up everywhere the plastering proceeds independently of the joinery, and the timber is clean and unstained from splashes of plaster, &c. In very common careless work the joinery is finished before the plastering is commenced, and this results in the wall-surfaces being not planes but twisted surfaces. The joinery is smeared with plaster, the wood is damped by the wet plaster, and when it dries there are gaping joints between plaster and timber. The old-fashioned way of dealing with prominent corners or quoins was to set up quoin-staves, and I am disposed to regard this plan still with favour; if the quoin-staff is not formed to show as a bead, only a small surface of wood should show in the finished quoin, and the sides should be formed to retain the plaster. A corner of this kind is not very liable to abrasion. The knock that will chip a harder material will not damage it. It is, however, not unusual to have the quoins formed with Portland-cement plaster surfaced smooth with Keene's cement. Grounds should be well spiked to stoothes, to wall blocks, plugs, &c. They should be carefully placed in the plane of the finished wall-surface. The joinery cannot be *spiked* to the grounds except at points where they bear solidly; if attempted elsewhere the spring of the ground will spoil the joint between it and the plaster; it is advisable to fasten all joinery to grounds with screws. There are modes of "secret" fixing which are obvious. When it is intended to show the natural grain of the wood in the finished work the fixing may be secret, or, as I prefer it, with brass screws, having brass cup washers.

Lathing.—Fifty years ago the nails used for lathing were awkward things of cast-iron. I do not think that these are much used nowadays, though they are still quoted in the books. I know no advantage in their use except that a mouthful of them is more comfortable for the lather to hold there (as was his custom) than the sharper new varieties. Cut nails are commonly used, sometimes cut nails tinned; the best nails are cut nails *galvanized*. Laths are called of three degrees of thickness—single, lath-and-half, and double. As laths are split or riven, they have not definite thicknesses which can be quoted; they range from $\frac{3}{16}$in. in the thinnest to $\frac{3}{8}$in. in the thickest; they average a little over 1in. wide; they should be nailed so as to allow the coarse stuff to squeeze up between them (speaking of ceiling work). The top turns over, giving a hook or hold above (called keying): on studs and stoothing the turning down of the coarse stuff is still more obvious. There is rather more danger of the lathing being too close than of its being too open. Heavier laths should go on ceilings than on walls. The spacing of joists should be accurate, if waste is to be avoided in the lathing. Laths are in bundles of definite lengths of lath in feet. (A bundle of laths 4ft. long, of 125 laths, contains 500ft.) A common carelessness is to allow the ends of laths to overlap (when the spacing of joists is irregular): they should butt joint. It is sometimes said that each lath should break joint. I have never seen this done. Lathing is done in "bays"; the bays should not be too wide —2ft. or 3ft.—and the bays should break joint.

When you see a plasterer first coating lathed work, and pushing his trowel across the lathing almost at right angles to the direction of the laths, he is doing bad work, because the edge of his trowel bears with all its pressure against each individual lath, with the result that they move up and down relatively to one another considerably, and the keying is destroyed: the stuff that comes up through the openings will be afterwards found lying loose and broken between the joists on the top of the laths. The plasterer should push his trowel so as to make an angle not greater than 45 degs. with the direction of the lathing; in this position the trowel always presses against a number of laths, never against a single one. This very simple matter is of very great importance. It would appear to be just as easy for the workman to drive his trowel one way as the other, and I take it that few workmen do not know the proper mode of working; yet I find repeatedly that they will do it the wrong way if not regularly constrained to do it the right way. The most important element in all constructional work is the human agency employed to carry it out. We will the better understand the peculiarities of workmen if we duly meditate upon our own; it may be taken to be a rule of life with the average man that he will be careless or possibly vicious where he does not expect to be supervised Many of us confess regularly that we have done those things that we ought not to have done, &c., and it is a regularly truthful confession. The immediate duty of the person directing workmen is to reduce the number of these items of penitential confession to zero in respect of their work. In one view it is sad to think of the decay of the village workman—the village shoemaker has disappeared, the village joiner is disappearing—but anyone who has had much experience of such solitary unorganised men has his regret tempered with the feeling that organisation in large shops and factories results in much better work. The ideal workman of the enthusiasts may have existed occasionally, but he was very rare. In my youth I saw regularly the promiscuous work of twenty to thirty different village joiners; of these only one habitually did really good work, but I have seen on one occasion the worst one of the others make, *under rigid supervision*, excellent window sashes—a job which sufficiently tests the village joiner. (For making up coarse stuff the student is referred to a previous article, January 22nd, 1902.)

"*First coating*," "*pricking up*," "*scratch coating*."—The student should particularly observe when he has opportunity the arrangement of scaffolding; the light plaster cask supporting the mortar board; the tempering of coarse stuff and its organised supply to the plasterers. Mr. Millar recommends, for good work, scratching with a single point. I have never seen this done. I have seen a toothed piece of board used for scratching; but the most usual thing is four pieces of lath pointed at one end and nailed together with lathing nails to form a rough comb. *Rendering* is the name given to the first or scratch coat on stonework or brickwork. (It is also the name given to coating slating between the rafters and battens on the inside of a roof with coarse stuff or mortar.) Before applying rendering the walls should be well brushed with a good stiff brush or broom.

"*Floating*," "*straightening*," "*browning*."—There is no doubt a much smaller proportion of lime to sand in mortar and coarse stuff in actual buildings than what is recommended and taken for granted in books. I have so far followed rather the book proportions than the actual working proportions, for which I have possibly an insufficient defence. There is some variation allowable depending upon the nature of the particular limestone of the locality: with rich lime it is possible to have a too small proportion of sand—the student cannot too well bear in mind the pulling together function of sand in mortar. The manifest economy of increasing the quantity of sand suggests that sand is an adulterant; sand, in proper proportion, is just as important as the lime. The stuff of the straightening coat should not differ greatly in proportions from that of the first coat; for the full thickness the "plaster" should be fairly homogeneous.

In first coating the workman is concerned in applying a fairly uniform thickness of stuff to the area; in straightening he is concerned in producing regular surfaces—mostly flat or *plane* surfaces. If the joists have been properly laid and the stoothes properly fixed there should be very little levelling-out on lathed work. On stone and brickwork it is different (particularly rubble masonry): it is often found that a good deal of levelling-out is necessary. The grounds for skirtings and trimmings are supposed to have been fixed properly, and these serve to guide the plasterer to his finished surface so far as they go, but the plasterer has to set out additional guides: he drives a nail into a stooth or into the wall close to the ceiling so that its head is in the plane of the finished plaster: this is found by applying a plumb-line between it and the ground. He may have a narrow plumb-bob less than twice the thickness of the ground in diameter, or he may use two pieces of wood of equal length to keep the bob out from interference with the wall. Between the nail and the ground close to the nail he lays a short ridge (or welt) of gauged stuff, which he works by means of a straight edge truly straight along its crest, thus forming a dot. (The term "gauged" stuff is applied to plastering or building mortar to which a proportion of plaster-of-Paris or of Portland cement has been added; in this case it means that some plaster-of-Paris is added to some coarse stuff.) If walls have been irregularly built so as to necessitate considerable filling out in parts, so that owing to the thickness of stuff it cannot be floated on one coat, these parts must be worked out with intermediate coating. A screed is formed between the dots (if necessary of gauged stuff): this forms a guide for the floating rule, which, worked between the screed and the ground, removes the surplus stuff which may have been laid on with the trowels. The use of "dots" and screeds varies with the dimensions and character of the work.

These cornices are of a simple character; the straightening coat is not carried into the corner between the wall and ceiling: if the cornice were different it might be necessary to bracket out for it, so that there would be a lathed surface roughly approximating to the shape of the cornice, an obvious expedient resulting in less weight of material and greater security of fixture.

A float is a wooden trowel: when it is of exaggerated length, with two straight-out handles and worked by two men, it is called a "Darby." Working the straightening coat with a float or Darby consolidates it and brings it to a regular surface, and it is called "floating." It is called "scouring" when a previously floated surface which has become tolerably firm and dry is worked up with hand-floats, and the work is wetted as may be needed from a brush. The last scouring provides for keying—that is, the roughening of the surface for the good adhesion of the setting stuff.

The walls and ceiling having been scoured on the straightening, the cornice is now to be

formed. It is of great importance that the lines of the cornice shall be straight; to ensure this the mould should bear upon true surfaces of wall and ceiling (plane surfaces which intersect in a straight line; twisted surfaces, as the soffits of some stairs are exceptional and require exceptional treatment), and it should bear upon these surfaces in exactly the same position for the whole length from mitre to mitre. The screeds are made true and smooth with gauged putty, using a traversing rule for the purpose of truing, and finishing with a hand-float. The mould is now fitted against the screeds at several places and points marked on the ceiling and wall; if the mould has been properly held plumb, the marks should be in one straight line, and to this line the running rule 3in. by ½in. is truly fixed. In fixing the running rules care should be taken that no harm is done to the work either by nailing to springy stoothes or by missing joints in masonry or brickwork. Some nails will be required, and intermediate points may be sufficiently supported by dabs of gauged putty and by supports of gauged putty laid against the bottom edge of the rule. The "plate" of the mould is cut from sheet-zinc truly to the architect's design; it is fastened with tacks to a piece of wood, which is cut approximately to the profile of the cornice (the stock); this combined plate and stock is fastened into a "slipper" with a wedge; the stock is stayed to the slipper with one or more stays, fastened with strong screws, so as to keep it truly fixed at right angles to the slipper. Sheet-zinc is very easily cut to a pattern; it may be cut with a sharp-pointed knife; it very easily breaks truly along a surface cut, and the edge is very easily made smooth and true.

No amount of reading will render it unnecessary for the student to see work of this kind to thoroughly understand the operations. The wetting of the plaster-of-Paris on the board, the mixing it with lime-putty, the keeping of the "gauged plaster" in good condition, the work of the two tradesmen—one running the mould, the other laying on the stuff—the working of mitres, must be seen, and if possible the student should take part in the work.

The running of mouldings in Portland cement is somewhat like that of plaster mouldings. Some difference of treatment is necessary owing to the different material. In plaster the setting is under some control by adding or withholding plaster-of-Paris in gauging. With Portland cement it may be necessary to wait from time to time, owing to its slow setting. I have not noticed in any book a reference to the use of washing-soda with Portland cement for stimulating its setting quality; it is, however, very much used in some places, and it appears to be effective. I have myself used a good deal of washing-soda with Portland cement to stimulate its setting in connection with sea-walls. I should be glad to get some criticism of this practice from practical men. The "orthodox" way is to render the cement-plaster stiff by throwing dry gauged stuff against it, working the mould over this and giving time.

I have already said that I have no confidence whatever in the continued adhesion of Portland-cement plaster to a brick surface. Owing to the absorption of moisture by bricks, it is fairly easy to run Portland-cement plaster mouldings on brickwork; I have had much trouble with such work. The conditions under which I allow Portland-cement plaster on common brickwork are that the brickwork shall have been built in Portland-cement mortar with fairly wide joints, and that the joints shall have been left unstruck, so that the cement-plaster may take hold upon the cement-mortar of the joints. This point is of very great importance, and I shall be glad to have it thoroughly criticised by practical men. Over a very large part of England building is almost exclusively brick building; stone is used sparingly for strings and dressings (window sills are covered with wide wood sills and made watertight by water bars, in my opinion inefficiently), and the ordinary language of the stonemason is not understood by building workmen. Cemented brick parapets are common, and the trouble with these contrivances is general. I have never seen a brick parapet built in common mortar and plastered with Portland-cement plaster which was ten years old and in fairly good condition. Owing to the greater wear of the mould in Portland-cement work, the plate should be of galvanized sheet-iron and the slipper should be protected with plates.

To return to the inside plastering. The walls and ceilings have been straightened; they are now to be set. The best setting stuff is made by working putty and sand through a punching sieve into a tub; the sand should be thoroughly clean (well washed) and free from any extra large grains.

The setting stuff should be laid with a skimming float in two coats; it should then be scoured with a hand-float and finished with a smooth trowel, water being used, thrown on from a brush, both for the scouring and trowelling; the surface should finish smooth and true; the thickness of setting should be about ⅛in. This is the best mode of finishing both walls and ceilings, but it is quite usual to set the ceilings with gauged putty set, and these ceilings were finished in this way. It is important that this work shall be done with judgment, both in regard to the condition of the straightening to receive the setting and the manner in which the surface is finished, without too much delay, which would allow the gauged stuff to set before the trowelling is finished. The student should know what plaster-of-Paris is and he should know why it sets. Plaster-of-Paris is made from a mineral called gypsum; it is crystallized sulphate of calcium, and plaster-of-Paris is also sulphate of calcium, but plaster-of-Paris is gypsum deprived, by heating it, of a portion of its water of crystallization. The rough-and-ready explanation of the setting of plaster-of-Paris is that when wet it reappropriates its water of crystallization and becomes gypsum again. It does not look like gypsum, but neither does snow look like ice nor pounded glass like glass. The reflection of light from the numerous facets of the small grains of glass and crystals of snow make those substances white. We may think of the set plaster as a mass of small cohering crystals which have rapidly formed, as compared with mineral gypsum which has crystallised slowly. This structure of set plaster makes it unsuitable for out-of-door work, where it would be subject to the combined effects of wet and frost. I also object to the usual practice of putting marble mantels together with it, and to setting hearth tiles with it: the heat from the fire at parts breaks it down into powdery plaster. I use Portland cement, as reliable, for setting mantels, though in some marbles the joints may be pointed with plaster-of-Paris and tiles should be set in Portland cement.

(To be continued.)

A Harrogate Church Condemned. — St. Mary's Church, Harrogate, has been condemned by the borough engineer (Mr. F. Bagshaw) as unsafe for public worship. The piers underneath the nave arches have given away a little, and there are also indications of cracking. The condemned church is the oldest in Harrogate. The foundation-stone was laid in 1822. Should any further settlement take place the church would practically have to be rebuilt. A new church would cost between £9,000 and £10,000.

Law Cases.

Workmen's Compensation: A Fall through a Ceiling.—At the Birmingham County Court on January 4th an action was brought by a joiner named Humphries against G. Bayliss, builder, of Moseley, to recover £100 for injuries sustained through the negligence of the defendant or his foreman. On July 17th last the plaintiff was employed on a building by the defendant, and was injured after he had been there a few hours. He stepped on a ceiling joist to get to his work, and fell through, owing to the joist being rotten. There was no scaffolding provided for him to step on. The defence was that a scaffolding had been provided, but plaintiff wished to get to his work a nearer way. The joist was to outward appearances quite good, but was found to be short grained. The jury gave a verdict for the defendant.

COMPETITIONS.

A LECTURE on architectural competitions was delivered to the members of the Manchester Society of Architects on Thursday last by Mr. Alfred W. S. Cross, F.R.I.B.A., of London. Mr. Cross is the chairman of the newly-formed Competition Reform Society. He began his paper by considering whether or not competitions assist the work which architects have at heart—namely, the advancement of architecture. With certain reservations, he contended that they did serve this end, and this despite the fact that many men of repute condemned the system on the ground that no man would put forth his best work on the remote chance of gaining a prize in what was virtually a lottery. This argument would no doubt be convincing in the case of a man who conducted his practice on strictly commercial principles, equally with the man who was content to work only for private clients. But when it was considered how popular competitions were with public bodies, and how largely they had increased in late years, and how immeasurably public buildings had improved, both in arrangements and architectural character, through competitions, there was no question that the popular feeling in favour of them had done much to foster latent talent in the mind of the architectural student who endeavoured to attain success through their instrumentality. Although the method of conducting competitions might be inefficient, yet competitions themselves could not fail to do good, and it was in consequence of the abuse of the system, not the system itself, that so many architects regarded it with disfavour. Competitions were acceptable alike to the promoters and to the competitors, and the average competing architect put forth his greatest effort in competitive work. The non-competing architects who were opposed to the system based their objections on the fact that there were so many recriminations and charges of improper conduct on the part of the assessor and the promoters after the award had been given. Assuming that competitions were necessary, he thought the time was ripe for them seriously to consider how the frequent abuse of the system could be remedied. They had to contend here with the apathy or half-heartedness of the Council of the Royal Institute of British Architects. In his opinion, at the initial stage of competition for a building of public character the Institute should approach the promoters with an offer to appoint a jury of not less than three assessors. A similar arrangement was at work in France and America, where it was found to work well. The new Society had come into existence to promote reform on these lines.

Bricks and Mortar.

Aphorism for the Week.

Nothing of historical interest in architecture or in personal attribute should ever be destroyed in a civilized nation unless its preservation causes actual injury to human beings.

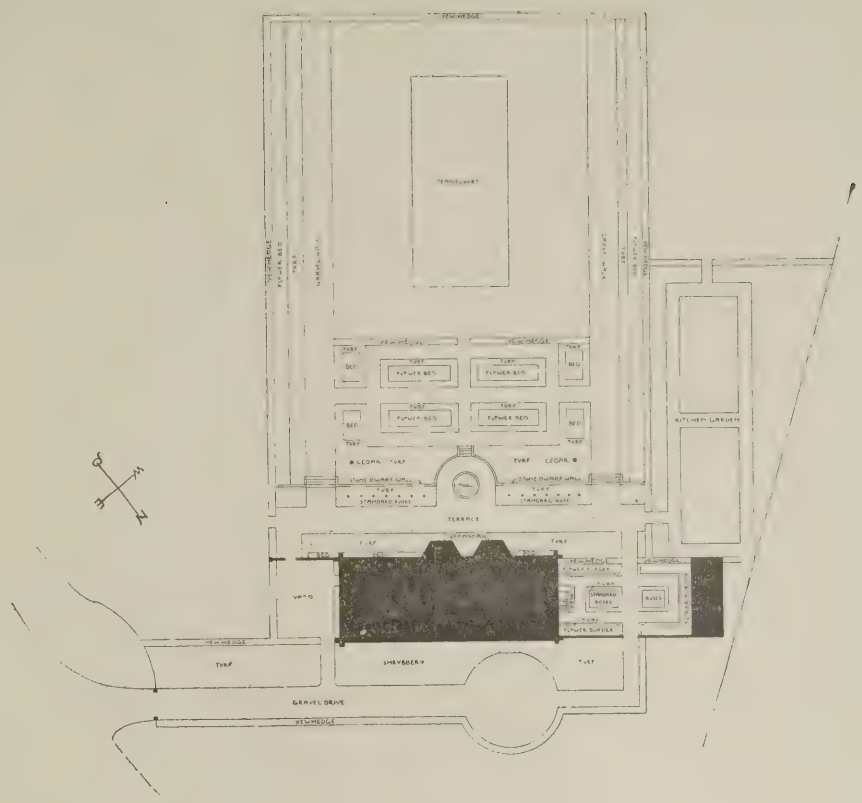
J. E. C. Bodley.

Our Plates. Prior's Garth, Puttenham, Guildford, Surrey, of which Mr. C. F. A. Voysey is the architect, has been built for Mr. F. H. Chambers, the contractor being Mr. F. Müntzer, of 16, Dover Street, London, W., and Farncombe. The house is of brick cement rough-cast, with local hand-made red tiles on the roof.—The date of the choir-stalls in Dunblane Cathedral, Perthshire, a measured drawing of which by Mr. Alexander S. Robertson we reproduce, is given as 1486–1534 in Macgibbon & Ross's "Ecclesiastical Architecture of Scotland."

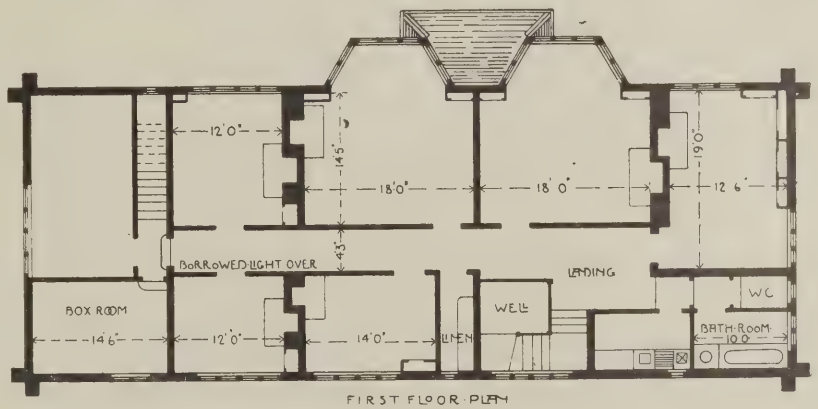
The Deanery of St. Paul's. The view from the steps of St. Paul's Cathedral, says the "Daily Chronicle," has recently included the Deanery, thanks to the pulling down of some buildings. Its walled fore-court and old-fashioned air of retirement means an agreeable touch in a familiar picture. But now the walls of the new buildings are rising higher day by day, and soon the Deanery will be thrust back again into the unseen. The site which it occupies has many associations, dating back to remote times. There were those who believed that somewhere between St. Paul's and the Thames at Blackfriars a temple of Diana had stood. This notion was no doubt founded on the discovery hereabouts of certain Roman relics, but it got no further towards acceptancy. Not for many a long year may Londoners again see the Deanery from St. Paul's Churchyard. This coming and going of it illustrates an interesting phase of changing London.

Fez. A descriptive article on the city of Fez was published last week in the "Times," written by their Tangier correspondent. One of the most interesting buildings in Fez is the little sanctuary of the Shrebeleïn, the mosque of Bu Uinan, in the Talaa—the main thoroughfare. This mosque boasts an exterior more decorated than is usually the case, and on both sides of the street there is a great deal of beautiful old plasterwork and mosaic of tiles. The wood-carving of the projecting beams and the brackets that support them is very fine in design and execution. Looking in through the doorway of the mosque, a small flight of steps meets the eye, at the summit of which is a large open courtyard with marble floor and a large marble fountain, the whole flooded with sunlight. On to this courtyard open deep-shaded arcades of arches, the façades of which are handsomely decorated. But the principal attraction of the Shrebeleïn mosque is its square tower, of no great height, but exquisitely decorated in mosaics of tiles, arranged in geometric patterns between the projecting edges of bricks. It is one of the most beautiful little mosques in Fez, and happily its position, projecting into the Talaa, allows an exceptionally good view of its exterior to be obtained. Its little tower, its green-tiled roof, its arches and projecting buttresses form as perfect a specimen of mediæval Moorish art as exists in Morocco.

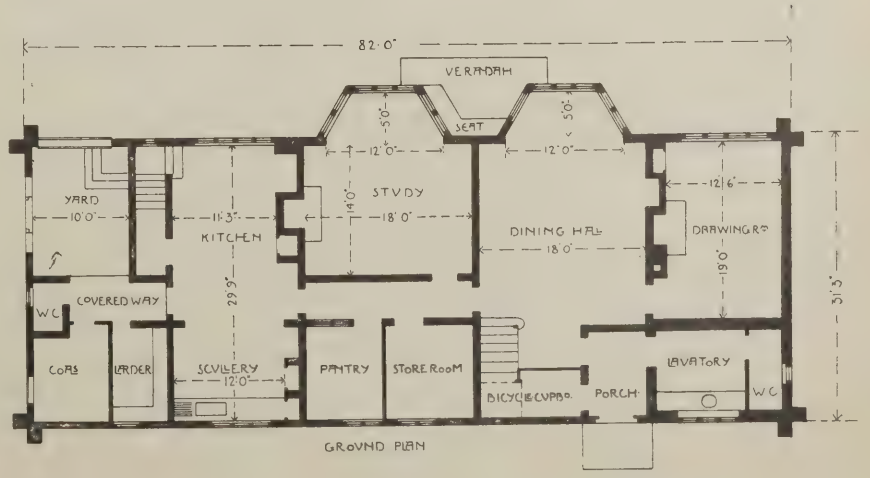
The Fondak en-Najjarin. Close to one of the doors of Mulai Idris is situated the first caravanserai in Fez, the "Fondak en-Najjarin." Its gateway leading into the courtyard, with its grand arch, its panels of rich tiling, and its wonderful overhanging roof of tier upon tier of carved wood, is perhaps the best in all Morocco. Delicate as is the detail of all the



PLAN OF GARDEN.



FIRST FLOOR PLAN



GROUND PLAN

PRIOR'S GARTH PUTTENHAM, GUILDFORD, SURREY. C. F. A. VOYSEY, ARCHITECT.

work, its fineness does not detract from the whole, and the effect is heightened by the tall grey-yellow walls that rise in absolute simplicity above and around this most beautiful specimen of architecture. Particularly good are the delicately carved wooden brackets, with their little pillars, that support the heavy beams of the hood over the gateway, and the panels of inlaid tilework that are sunk into the recesses of the plaster. On the right, as one faces the arch, is a drinking fountain almost a replica in miniature of the grand old gateway itself. The interior of the caravanserai is, in its way, equal to its exterior, for three tiers of galleries surround the courtyard, of which the balustrades are of fine *musheribeyeh* work in cedar wood that has turned dark with age. The panels of these balconies are divided by white columns that support the floor above, one and all boasting capitals of finely-moulded and incised plaster. The upper gallery is almost entirely enclosed by small horseshoe arches in cedar wood, delicately carved. A remarkable specimen of an old ceiling is to be seen directly beneath the archway on the ground floor. The courtyard is surrounded by the shops and offices of the better class of Fez merchants, who sit and carry on their business quietly and with no sign of bustle or excitement, and from time to time a caravan of camels will enter to discharge loads of merchandize. Near by in a shaded bazaar the carpenters ply their trade, and the whole street is sweet with the scent of cedar wood.

Old Rome. It has long been felt that some visible record should be kept for the general information of the public of the sites on which the magnificent buildings of Rome stood. It has now been decided that marble records shall be placed on the sites, and the Minister of Public Instruction has appointed a commission to undertake this responsible work. The work will be begun in the course of the present month, and it is hoped that by the time Spring arrives even those unacquainted with Rome will be able to see for themselves where the noble edifices of ancient Rome were situated.

New Rome. During the past year several notable changes have been made in the general appearance of Rome. One of the greatest is the new tunnel for street traffic, a most useful, though not a highly ornamental, addition to the city. It is 300yds. long and connects the Via Nazionale with the Via dei due Macelli. Several new buildings have risen into prominence in the Sallustiano and Prati di Castello neighbourhood. Several new convents have also been built, and new houses have sprung up in the Via Nomentana, the Corso Vittorio Emanuele, and the Corso Umberto. For the year 1903 the sum of 12,500,000 lire (£500,000) has been set aside by the Government for public works in Rome. The first to be begun will be the opening of the new thoroughfare which will lead from the Palace of Justice to the Piazza Navona. Another piece of work which will soon be taken in hand is the enlargement of the road leading from the Via del Tritone along the Via dei due Macelli to the Piazza Barberini. The frontage of the new tunnel will also be built in the course of the year.

The New Savings Bank Buildings. The new Savings Bank Buildings at West Kensington will be opened in April. Three of its many rooms have each a length of no less than 350ft. It has been erected on a site known as the Olympia Annexe. Perhaps the first thing that strikes the casual observer is the great contrast between this imposing structure of five floors and the rather small class of dwellings amongst which it is placed. The front, which faces Blythe Road, is in Renaissance style and built of Portland stone and red brick. In the centre, which is almost wholly of stone, is the main entrance in the form of three arches leading into the quadrangle beyond. On either side of the arches is a bay surmounted by a dome-topped tower, and between these towers a space is provided for a clock. In form the building is a hollow square, with the north and south blocks continued on both sides beyond the east and west blocks, the projecting ends suggesting that the present structure, huge though it be, is only a portion of the complete design, to be continued, perhaps, as necessity requires.

The Wellington Memorial to be completed. The rumour is current that the national memorial in St. Paul's Cathedral to the Duke of Wellington is at last to be completed by the casting of the mounted figure intended for the summit. Thus, says Mr. M. H. Spielmann, the object which Lord Leighton had in view when he organized the subscription shortly before his death will at last be realized. No statement has yet been made, however, as to the name of the sculptor who is to carry out the work. It would be interesting to the subscribers to the fund, and to the public generally, if they were informed how far Alfred Stevens's model was left completed, and if it is at all suitable for reproduction without the intervention of another sculptor. It will however be agreed that, whoever may be the sculptor who may eventually be employed, no one should be selected whose name is not worthy to be linked with that of Alfred Stevens in the completion of this great national work.

Old London Churches. Canon Benham lectured before the London Institution last week on "Old London Churches." After speaking of old St. Paul's Cathedral, he said that very few Norman churches now remained. A portion of St. Bartholomew's, in Smithfield, was erected in the Norman style—late Norman. Others of the Norman age were the Temple Church and the chapel in the Tower; and these were all. During the Middle Ages a wonderful number of churches sprang up. London was filled with the resounding of church bells. In all there were 126 parish churches, and there were others, small chapels, erected by rich merchants. Eighty-six of the City churches were burnt in the Great Fire of London, and of that number thirty-five were never rebuilt. The parishes remained and the names of the parishes were added to some other church in the neighbourhood. Of those which remained, one wished that they were more usefully used than they were. He knew of two churches—very handsome they were—but one on a recent occasion had a congregation of four, and the other seven; and he had heard of another church where there were only present at a service the choir and the pew-opener. Of the Mediæval churches eight remained—All Hallows, Barking; St. Andrew, Undershaft; St. Bartholomew, Smithfield; St. Ethelburga; St. Giles, Cripplegate; St. Helen, Bishopsgate; St. Catharine Cree, Coleman Street; and St. Olave, Hart Street. All Hallows, Barking, was the mother church of many of the same name in London; here were the best brasses remaining in London. St. Bartholomew's Church was erected by Rahere, who was called the King's jester, but why he did not know. In St. Helen's, Bishopsgate, were many very interesting monuments. Besides the churches, there were a great many religious houses and monasteries. In St. Martin's-le-Grand was the chief of the monasteries, and there the curfew bell was sounded to give the Londoners the time. St. Helen's church was a double one and very interesting to visit. In Mediæval times fully one-fourth of the City was occupied by churches and religious houses. Churches were erected at all the gates. Referring to Wren's churches, the Canon mentioned that Wren never paid any attention to the exterior of his buildings, but devoted all his skill to the interiors; and he suggested that, when in the City, visits should be paid to St. Stephen's, Walbrook, and to St. Mary Abchurch, in Abchurch Lane, as perfect specimens of his style.

American Architecture. Mr. E. M. Gibbs, F.R.I.B.A., gave a lecture on "A short visit to the United States and Canada" before the Sheffield Society of Architects and Surveyors last week. Mr. Gibbs explained that his visit had been a hurried one of only thirty-one days from Liverpool, of which eighteen days were spent in America. In presenting views of New York he drew attention specially to the skyscrapers, and stated that they had the quality of architectural dignity so eulogised by Ruskin as "The Lamp of Power," which was due not only to their great size but to the simplicity of design and the beautiful grey granite with which they were encased. The rents for an ordinary office, say 5yds. square, varied from £500 on the lower, to £100 per year on the upper floors, including lighting and heating. Some of the land had cost £350 a yard. The damage by skyscrapers to the light of adjoining buildings is of course very substantial, but as there is no protection against this by law in America, and electric light is in such universal use, there is apparently no complaint. In the views of Boston Mr. Gibbs drew attention to the public library, which is built of grey granite, and cost £500,000, and is one of the best examples of the work of the late Mr. Hunt; and also to the Symphony Hall, which has seats for 2,680 and cost £100,000—it is specially well arranged for convenience of access and egress by corridors all round on each floor, and has a most complete ventilating apparatus. As to the university buildings, he found that the sites were all much larger than at present required, that in each case a good general plan had been adopted, and that the buildings were being erected gradually as funds came in; that separate buildings were erected for separate departments, and that very frequently gifts of buildings had been made by gentlemen specially interested in one department; as an instance he exhibited the plans and views of "The Robinson Hall" at Harvard University, which was for the department of architectural education. Mr. Gibbs also referred to his visits to the architectural department at Columbia University, Massachussets Technological Institute and Montreal University, and suggested that in the new university buildings to be erected in Sheffield some provision should be made for architectural education. He also stated that, with regard to the allegation that the American bricklayer laid more bricks than the British bricklayer, it was not, apparently, generally known that the American brick was only 8in. by 3in. by 2in. thick, as compared with the Sheffield brick of 9in. by 4½in. by 3in. Speaking generally of the architecture of the United States, Mr. Gibbs thought that the finishing of the education of many of their architects in the Paris schools of architecture had a beneficial effect, and accounted for much of their good planning and dignified buildings.

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Supplement to
THE BUILDERS' JOURNAL AND ARCHITECTURAL RECORD,
Wednesday, January 14th, 1903.



"PRIOR'S GARTH," PUTTENHAM, GUILDFORD, SURREY: GARDEN FRONT. C. F. A. VOYSEY, ARCHITECT.

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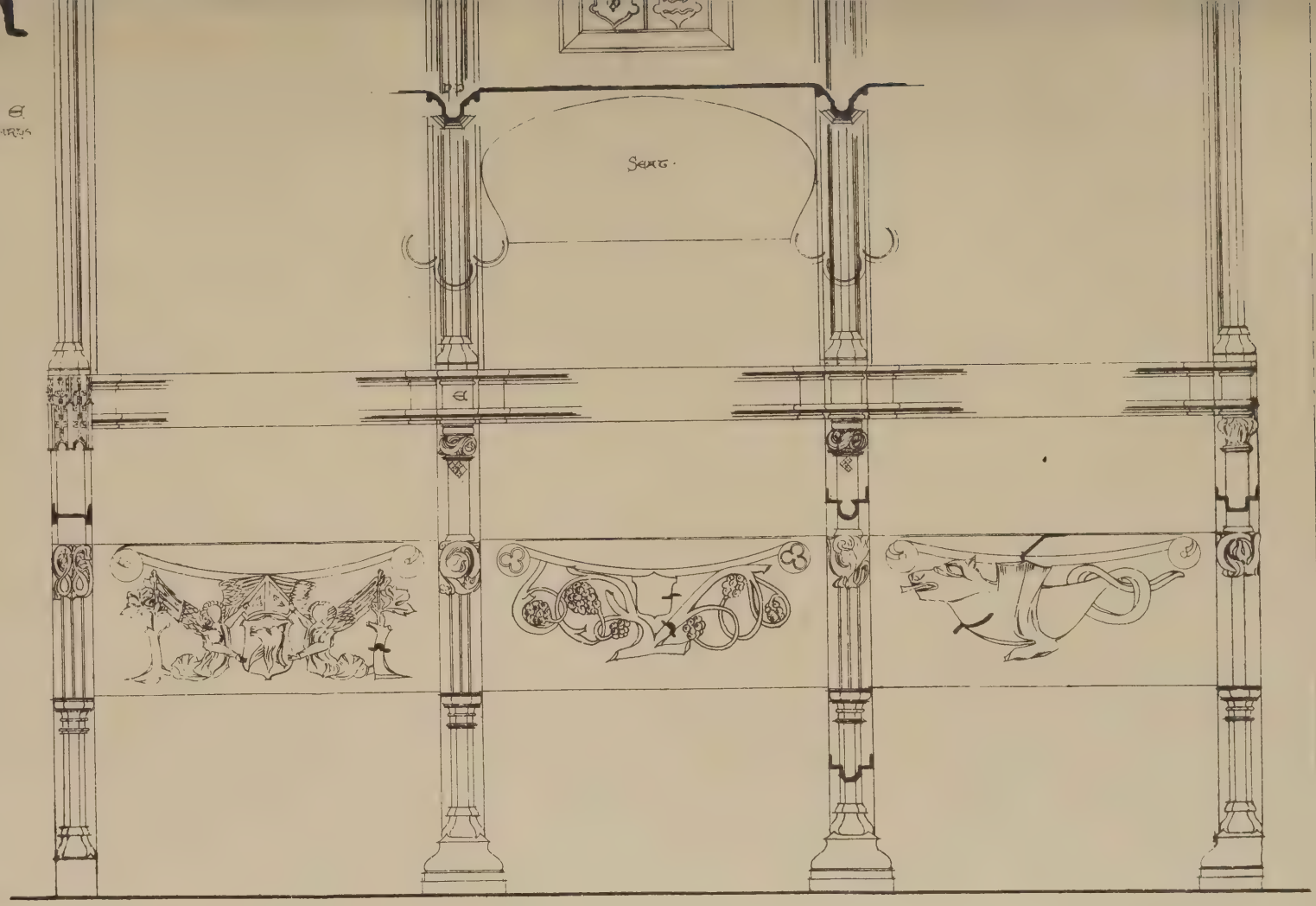
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:Dunblane: Cathedral:

:Old: Stalls: in: Choir:





Elevation

12 9 6 3 0 1 2 3 4 5
Ins. Feet.

Scale.

"PHOTO-LITHO." R. J. EVERETT & SONS, 56 LUDGATE HILL, E.C

Measured and Drawn by Alexander S. Robertson.

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Enquiries Answered.

The services of a large staff of experts are at the disposal of readers who require information on architectural, constructional or legal matters. Questions should in all cases be addressed to the Editor. The querist's name and address must always be given, not necessarily for publication.

Measuring at Hampton Court.

REX writes: "Where can permission be obtained to measure at Hampton Court Palace?"

Write to the clerk of the works, Hampton Court Palace, enclosing a stamped and addressed envelope for reply. G. A. T. M.

Creosoting a Fence.

STOKE-ON-TRENT.—R. E. J. writes: "Which is the best way to creosote a fence already erected? The specification reads: 'Creosote one thoroughly saturating coat.'"

An enquiry about creosoting wood was fully replied to on p. 247 of our issue for November 26th last. Creosote is the oil of coal-tar, and can be applied like tar.

A Defective Hot-Water System.

LONDON, N.—H. H. writes: "A hot-water apparatus is fixed in a small house on the 2-tank system—the cold in the roof and the hot in the bathroom just beneath, with a dip-pipe between. The hot tank is about 2ft. 6in. by 2ft. 6in. by 2ft., and is connected to the kitchen boiler by ¾in. flow and return pipes—about 40ft. run or more—and the bath and lavatory drawn-off flow-pipe. The results are highly unsatisfactory, as it is impossible, even with a big fire, to get more than 3in. or 4in. of hot water in the bath (which is a small one), and even then it is not very hot. Possibly one of the following is a reason for this:—(1) Flow and return are long and irregular in line and enter boiler at side and not top; (2) the boiler is possibly too small—and water runs through without getting heated—especially when bath is filling; (3) the return pipe appears to get the cold water entering tank instead of heated water at top—so that as soon as pipes are emptied of the hot water they contain, cold or tepid water only is drawn off. What would be the cheapest remedy?"

It should have been stated whether the system is new or old; also whether, if old, it has ever worked satisfactorily or whether it has been bad from the first; for if at some time it worked in a satisfactory manner and does not do so now, the different conditions which now affect it should be discovered and altered. Presuming that it has always been unsatisfactory, the fault may be in the boiler flue. The flue should be as wide as convenient and not deeper than 2in. The flames and gases of combustion will thus be brought into contact with as large a surface of the boiler as possible, and the best results will be obtained from the combustion of the fuel. It should be ascertained that the boiler is clean—inside, so that the water may come in contact with the metal; outside, that the flame may come in contact with the boiler. Sediment inside the boiler and soot outside will prevent the best results being obtained. The flues also should be kept clear. It can often be ascertained whether the fault is in the boiler or fire by feeling the flow-pipe as near the boiler as it is accessible at different times after the fire is lighted. If the boiler is clean, the flue in good condition and the fire good, circulation should begin at once and the flow-pipe should be too hot to be grasped in the hand within half an hour of lighting the fire. Connecting the pipes to the side of the boiler instead of to the top will make no difference to the working—it is a matter of convenience in fitting. By noting the differences of temperature, when in contact with the hand, of the flow- and return-pipes near the boiler and near the tank, one should be able to say whether the failure of the system was due to radiation of heat from the circulating pipes. If so, covering the pipes carefully with non-conducting material would effect a cure. In any case, with such a long run as stated, 40ft., this should be done. The same will apply to the hot-water tank. A covering of non-conducting material might cure the trouble. The return pipe *should* be connected to the lowest part of the tank, where the water is necessarily coldest. In many systems the supply from the cold-water cistern is connected to the return-pipe between the boiler and the hot-water tank instead of to the tank itself. If the cold water from the supply-pipe is drawn off at the bath through the flow-pipe, leaving hot water in the tank, the pipes need to be re-arranged. This can be ascertained by feeling the tank with the hand after the water issuing from the hot-water tap becomes cold. This can be cured by supplying the bath and lavatory from the top of the tank—say, from the lower end of the expansion pipe. In this case hot water will be drawn as soon as there is any in the tank and as long as there is any in the tank. But it can only be drawn as quickly as the tank is supplied from the cistern. Both flow- and return-pipes should have a continuous rise from the boiler to the tank, and no elbows should be used on either, all changes of direction being by bend. It is not likely that the boiler is too small, as boilers in America—there called water-backs—are much smaller than any used in England, yet the results are good. The trouble is generally in applying the heat to the boiler. If the flues are put into good condition, the circulating-pipes and the tank protected from excessive radiation, and the hot-water supply to bath and lavatory taken from the top of the tank, the trouble will most likely be cured. If it is not, the circulating pipes must be replaced by others of larger diameter. G. A. A.

Condensation Inside Galvanized Roof.

ILFORD.—F. W. H. writes: "In a roof covered with galvanized corrugated sheets exposed on the underside we are troubled with the condensed water dropping down on the floor. The water runs down the sheets until it meets the iron purlin-bars and then drops, so that there is a series of lines of water along the floor. Which is the best way to overcome this difficulty? It would be inconvenient to have to board the underside of the roof."

The simplest method of overcoming the difficulty would probably be to carry a light zinc gutter along the lower edge to catch the drips. An expensive alternative would be to line the inside with slag wool or hair felt, held up by wire netting, with bolts through the high part of the corrugations. The trouble may be partly removed by better ventilation, to carry off the warm moist air which now deposits its moisture upon coming in contact with the cold metal.

HENRY ADAMS.

Angle of Purlins.

BASINGSTOKE.—R. G. writes: "Which is the stronger method of placing purlins as at A or B (not reproduced)? Why are both methods used?"

The common position of a purlin at right angles to the principal rafter is the stronger and better. Advocates for placing the purlin with the deep side vertical say that gravity acts vertically, and that this is therefore the proper position in which to place the purlin so that it may act to the best advantage. They are correct in the statement of gravity acting vertically, but incorrect in assuming that the purlin is under a vertical load. The longitudinal thrust of the common rafters is taken by the pole-plate leaving only the transverse component to be taken by the purlins, so that the depth of the latter should be in the direction of the force, *i.e.*, at right angles to the rafters. A very similar case occurs in iron roof-trusses. In the common arrangement of the members the principal rafters are divided into a certain number of bays and the struts placed at convenient angles to suit the division of the tie-rods, but in the roof over the Ealing Broadway Station Sir John Wolfe Barry had the struts placed vertically because "the load acts vertical, therefore the struts should be placed vertical"; whereas the only vital consideration is to place the struts from the point where the load is received to the point whence it may be conveniently transmitted, and, other things being equal, to so arrange the parts that the struts may have a minimum length.

HENRY ADAMS.

Speculative Builders and Income-Tax.

SCARBOROUGH.—A BUILDER writes: "I am a small speculative builder, and the income-tax assessors have assessed me at £400 a year nett, although my income does not exceed £160. I have had a three years' statement prepared by a chartered accountant, and have appealed before the Commissioners, but they would not accept the statement. The surveyor's argument is that on every house built there is a profit, and although the house is not sold there has been so much money added to the capital, which no doubt is correct to a certain extent; but I think that the surveyor should only charge on houses sold, because the property might depreciate, and there may be a loss on every house instead of a profit. I shall be compelled to pay this year's tax, but should like to know how to recover any overcharge."

For the purpose of income-tax assessments, the surveyor's contention that profit on houses built should be brought into account is quite correct, although as a rule when a statement is prepared by an expert for the purpose of appeal a percentage of the profit is usually arrived at between the expert and the surveyor, so as to meet the just requirements of the assessor and at the same time deal quite fairly with the appellant. If on the sale of any of these houses afterwards a loss is made, or a profit larger than the percentage already included, it should be brought into the next account for assessment, and in this way the accounts, or rather the assessments, should right themselves. I should, however, much like to have seen a copy of the statement which you sent in for the appeal, as I think this might enable me to give more definite information. I shall be glad to inform you how to recover overpaid income-tax if you care to send me (addressed to the Editor of the BUILDERS' JOURNAL) the above particulars and receipts for the income-tax paid during the last three years.

ALFRED A. W. JONES,
Secretary, Lancashire Trades Association.

American Architectural Magazines.

CHATHAM.—F. G. L. writes: "What are the prices of the following American architectural magazines, and who is the London publisher?—'Architecture,' 'The American Architect' and 'Carpentry and Building.'"

"Architecture" is published by Messrs. Forbes & Co., Ltd., 160, Fifth Avenue, New York. Its price, to be paid in advance, is five dollars a year (20s. 10d.), mailed flat to any address in this country. The regular price of each monthly part is 35 cents (1s. 9d.). "The American Architect" is published every Saturday at 211, Tremont Street, Boston, Mass. Its price is eight dollars a year (33s. 4d.), mailed flat to any address in this country. "Carpentry and Building" is published monthly by the David Williams Co., 232-238, William Street, New York. Smith's would undertake to obtain these journals for you regularly, or you could write to the publishers direct.

CONTINENTAL NEWS AND OPINIONS.

[The following extracts have been translated for THE BUILDERS' JOURNAL from the German, French, Spanish, Italian and Russian press. We do not necessarily approve some of the opinions expressed, which are simply given to show what views are held on the Continent in regard to architecture.—ED. B.J.]

Lime Sandstone Bricks and Fire.

The "Zeitschrift für Bauhandwerker" has an interesting letter on the subject of the fire-resisting power of lime sandstone bricks. The writer says that there has always been a question as to the resistance of these bricks to fire and water; and although they have been tested on a small scale by special exposure, their opponents have held that they would not stand the test of a genuine fire. This opinion, held by quite good authorities, has always been against the general adoption of the bricks. As no case of a severe fire has been reported in which the bricks have been involved, the writer assumes that no such fire has taken place; so he cites the case of a small but sharp fire in Russia where a dwelling-house was gutted by a fire lasting about three hours. The walls of the house were of wood, but the party-wall and the chimney were of lime sandstone bricks. The chimney, being in the centre of the house, had to stand all the rigour of the flames, besides being played upon with copious supplies of water. Both the party-wall and the chimney stood the test well. The bricks in the chimney were whitened to a depth of 5 to 8 millimetres, but throughout the rest of the brick the colour was not changed. Ten weeks afterwards, at the instance of the maker of the bricks, the ruins were photographed, and, besides the testimony of eye-witnesses that there was no appearance of flaking or weathering, the photograph shows no cracks.

Resistance of Cement.

It has been found that reservoirs and tubes made of Portland cement do not long resist contact with acid liquids, and that lime-cement will not even resist contact with carbonic liquid (such as rainwater). Painting over with fluosilic acids has not given satisfactory results. A fish pond treated with fluosilic acid of lead in which fresh water containing carbonic acid was placed was eaten away after three and a half years. It is worthy of note that the carbonic acid is the more deadly as the water is purer, that is, with the diminution of the earth salts which it contains in solution.

Swiss International Competition.

A monument to the World's Postal Union is to be erected in Bern, Switzerland. Competitive designs are invited, and these may be sent in up to September 15th, 1903. The monument is to be erected on the Steinhauerplatz, and the cost is not to exceed 170,000 francs (£6,800). The money for prizes at the disposal of the committee is 15,000 francs, and the conditions can be had free of charge from the Schweitzerische Post und Eisenbahn Department, Bern, or from the International Bureau at the World's Postal Union, Bern. The jury will be international, and be represented from Berlin, Vienna, Brussels, Copenhagen, Madrid, Paris, London (Mr. Armstead), Budapest, Zurich and Bern.

Barcelona's New Church.

Barcelona has followed the example of Paris in establishing a church on the top of the highest hill in or near the town and dedicating it to the "Sacred Heart." One of the finest sights known to the tourist is that from the top of this hill—the Tibidabo. The "Heraldo" of Madrid states that the first stone of the new temple was laid on December 28th, in the presence of an immense concourse of Barcelonese. In honour of the occasion the bishop held a special mass, after which he headed a procession which was helped to the top of the hill by the cable railway.

Democratic Architecture.

Karl Scheffler in the "Berliner Architekturwelt," in an article on "The Way to a Style," says:—"Artistic creation results from need, and is not a free choice. Certain characteristics of art are handed down as inseparably as the peculiarities a child inherits from its parents. The architect of to-day is in a difficult position, for he is confronted with projects that cannot be treated artistically. Misled by contemplating English conditions, the influential Anglophiles show the art of villa construction; but the enthusiasm for this style is of no use to an architect who has to plan a block of flats. As, in nature, organisms are evolved to suit requirements, so the social will can exact a style or form. Thus in a walk through the new Berlin streets we can recognize a general design dictated by requirements in the blocks of flats, and all this is much more evident by the anxiety of the architects to distinguish their edifices from those of their neighbours by added embellishments, but this cannot conceal the design. Dwelling-houses have become like clothes. In time past the clothes revealed the station of the man, but to-day all wear the same. So in time past the man's station was shown by the house he lived in: now all occupy the same style of house or flat, except in the country, where the distinguished man has his villa. Cities are going to be divided into compartments, but the individual dwellings will not be distinguishable. Let the artist not complain of the architect but of the social development." This strange article concludes as follows:—"It is inevitable that the logic of modern and ever-increasing democratic development of life is overcoming many deviations, and is creating an architectural expression for itself which will not be special and beautiful in the romantic sense but will still be full of character."

A Famous German Architect and the St. Louis Exhibition.

The German Imperial Commissioner for the St. Louis Exhibition is Theodor Lewald, who, in company with the architect Bruno Möhring (whose views on modern art education in Germany have lately been given in these columns), is already in America making preparations for Germany's participation in the World's Fair in question.

Prussian Minister dictates Dimensions of Bricks.

The Prussian Minister of Public Works has issued a recommendation to use bricks of large size in monumental buildings, and in order to ensure that they are made in sufficient quantities and at reasonable prices he places the sizes at 28·5 cm. long, 13·5 cm. broad and 8·5 cm. deep. This is the size of the bricks to be used in Government buildings. The joints are to be 1·5 cm. A metre is to be counted as ten bricks.

The Paris Exhibition Machinery Gallery.

It is proposed to take down and re-erect elsewhere the fine iron gallery that was constructed at a cost of 7,600,000 francs for the machinery exhibits at the Paris Exhibition of 1889. But the "Echo des Mines" expresses the opinion that the structure should be allowed to remain where it is, for, after all, it can only live another ten or twenty years by reason of the short life of ironwork. "Metal is not inert. A mysterious crystallization goes on in the mass which by-and-by enfeebles it."

A Russian Bridge Competition.

The "Nouve Vremya" of December 1st says that at the Alexander Hall at St. Petersburg are hung the numerous competitive designs for the new bridges to be built over the Neva and to be called the Dvortza and Oxtensko Bridges. There are forty-one competitors, of which three come from the United States, five from Austria-Hungary (Vienna and Prague), two from France, two from Germany (Frankfurt-on-the-Maine), two from Spain, one from Italy, one from Holland and one only from England. There are sixteen from St. Petersburg and three from Moscow; and some from the Russian provinces.

The Turin Exhibition.

According to "La Construction Moderne" the architects stood well forward at the Turin Exhibition of Arts this year. The English exhibitors were taken as a group and awarded a diploma of honour, whilst another diploma was granted to Mr. G. Macintosh, of Glasgow. Scotland, Pelgium, Germany, Italy, France and Austria all secured honours. A Vienna architect, Mr. P. Baumann, got the prize of £120 for a design for a modern villa. Of nine money prizes five went to architects. The correspondent making the report says that Italy is probably at the moment the poorest country in architectural design. "The wonderful attention given to interior design such as tapestry, &c., would make the shades of Ruskin and Morris rejoice," says the writer of the review.

A German Town Hall Competition.

At an early date the Communal Administration of Oberschoneweide, Germany, will receive designs, plans, &c., for the construction of a town hall, the cost of which is to be 350,000 marks (£17,500). There are three prizes offered of 2,500, 1,500 and 1,000 marks (£125, £75 and £50) respectively to be awarded to the three best projects.

Contemporary Architecture in Romanic Switzerland.

The "Schweitzerische Bauzeitung," published usually in German, gives an article in French from the pen of M. Lambert, architect, on the above subject. He speaks very favourably of the manner in which the Swiss have preserved their traditional characteristics in their town architecture, and have, so to speak, resisted the wholesale modernising of their towns, as has been the case in so many places, though it would be an exaggeration to say that Romanic Switzerland has an architecture of its own. The centres of architectural development are Geneva, Lausanne and Neuchatel, which towns have a particular "catchet." They tend to resemble the French style, accounted for no doubt by the fact that most of the Swiss architects have been educated in Paris, but they have also had some education in Germany. Nevertheless the dominant characteristic is that of the French school, slightly modified by German influences, with a tendency to return to local traditions. There is a strong flavour in the buildings of the style of Louis XIII. and XVI., sometimes a little Renaissance, but never anything of the Middle Ages. Modern Gothic, as it is found in Germany, is not to be seen in Romanic Switzerland any more than the Roman or the early styles; and M. Lambert adds, perhaps with a touch of sarcasm, that there is not the tendency to express one's ideas in antediluvian forms as is practised nowadays by the Germans in their monuments. M. Lambert continues: "It appears that the French *esprit* has a higher opinion of the progress of art accomplished in the course of centuries, and that it does not need to slake its thirst for novelties by presenting as ultra-modern Egyptian or Scandinavian imitation."

Additions to the Wigan Sanatorium were opened last week. They include a scarlet-fever block consisting of two wards—for males and females—offices, and an enlargement of the administrative block. The architect was Mr. W. Bolton, and the contractors were Messrs. Wilson & Co.

New Patents.

These patents are open to opposition until February 24th.

1901.—Water and Steam Heating Plant.—25,635. P. KATZ, 9, Clara Street, Cologne-Ehrenfeld, Germany. The supply of air to the furnace is automatically regulated by a float which is raised when the normal temperature and pressure are exceeded.

1902.—Tiles for Dyeing Vats.—1,082. G. HINCHCLIFF, Quarry House, Skelmanthorpe, Yorks. Dyeing vats are usually of wood lined with long white-glazed tiles jointed with cement; but the cement becomes permeated with the dye and affects subsequent dyes. According to this invention, therefore, the tiles are jointed with lead, run in hot and smoothed off when cool.

Drawing-Boards.—1,159. E. ELLISON, Sandy Bank, 53, Bolton Road, Irlams-o'-th'-Height, Manchester. The drawing-board has a strip of iron let into its edges, and a **T**-square is used having a series of magnets embedded in its head; thus preventing it becoming out of place or falling off the board.

Curved Glass Tiles.—1,599. C. H. THOMPSON, Platt's Glass Works, Amblecote, Stourbridge; and the CRYSTALLINE CO., LTD., 67, Mosley Street, Manchester. The glass is not taken molten from the crucible and pressed into shape, but sheet-glass is put into a mould and heated till it is plastic; it is then pressed into bull-nose, angle, bead or other similar form. It is claimed that thin tiles can be produced in this way, that the cost is less, and that there is no risk of unequal cooling.

Earthenware Pipes.—1,797. R. H. SMITH, "The Woodbines," James Street, Nuneaton. Ordinarily an earthenware pipe is formed in a vertical die and pushed out downwards. When the full length has been ejected, the mill is stopped, and the pipe is cut off by hand. The pipes may thus differ in length. To avoid this, according to this invention an automatic knife or cutting wire is provided which is released at the exact moment.

Fireproof Floor-Covering.—3,261. R. ZELLENKA, 4, Jasomirgottstrasse, Vienna. The floor consists of sheet-iron plates on which is laid a coating of xylolithe (a mixture of sawdust, burnt magnesite and magnesium chloride).

Hot-Water Systems.—21,784. J. A. DONNELLY, 1,508, Pacific Street, Brooklyn, New York. A hot-water system is fixed in conjunction with a steam heating pipe. A substantially maximum temperature is thus secured throughout.

The following specifications will be published to-morrow and will be open to opposition until March 3rd. A summary of the more important of them will be given next week.

1901.—18,800, WRIGHTSON, treatment of town refuse. 26,561, KIDDIE, fastenings for double doors.

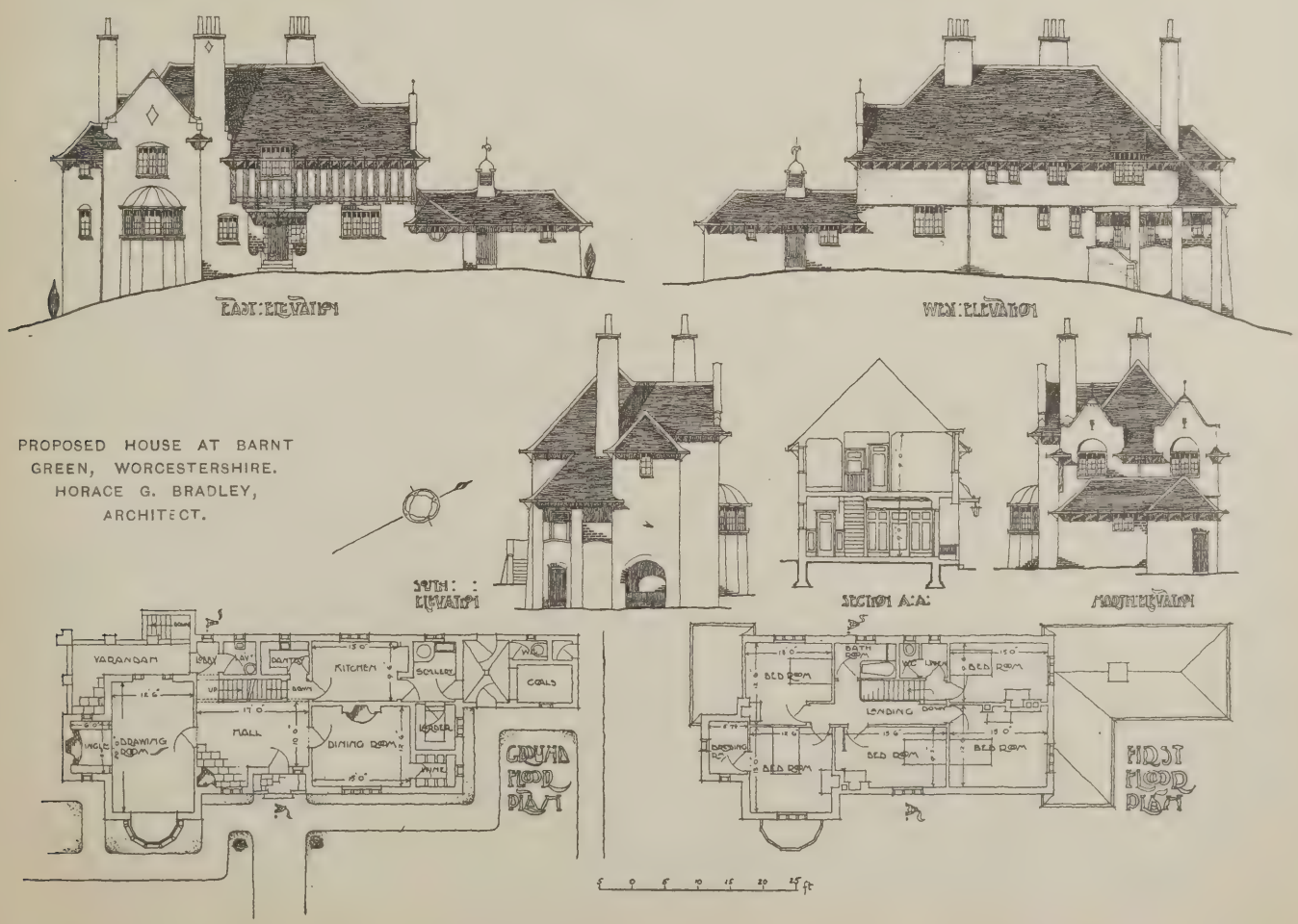
1902.—247, STANLEY, manufacture of sanitary pipes. 2,518, HODKIN, combination sink, boiler and bath. 2,519, HOLMES & TYZACK, tape measures. 2,522, WHITTAKER & C. WHITTAKER & CO. (1900), LTD., bricks or artificial stone blocks. 3,108, BURKILL & SUNDERLAND, method of connecting pipes. 3,117, LEGGOTT, apparatus for operating fanlights. 3,122, CLAYTON, recessing or grooving planes. 3,147, HUGHES, door latches. 3,171, ELLIOT, seats for closets, latrines, &c. 3,291, DOMAN, springs for doors. 4,660, RUNCORN WHITE LEAD CO., LTD., BARTON, JONES & CRAWLEY, production of lead oxide and the treatment of rough litharge and residues from the precipitation white-lead processes. 10,496, PEARSON, device for fixing knockers, &c. 13,394, MILWARD & WATERMAN, iron brick machine die. 14,126, MCDOWALL, staying and securing rods in armoured concrete. 17,369, DHONDY, artificial stone. 20,056, LEES, furnace for destruction of refuse. 21,225, BELL & ADAMS, urinals. 21,840, SCHLENTHEIM & DIESPEKER, LTD., mosaic steps. 23,558, VANDER VEN & DREESSEN, artificial marble. 23,750, PARKER, distribution of sewage on filter beds. 24,299, LEGGOTT, fanlight casement openers.

R.I.B.A.

The President's "At Home."

ON Monday evening at 9, Conduit Street, W., Mr. Aston Webb, A.R.A., held the first of his "At Homes" as president of the Royal Institute of British Architects. This is quite a new feature and proved a great success. A very large number of members were present, including many from the provinces, in all about 500. Hung on the walls of the rooms were the working drawings of some of the late J. F. Bentley's work—the Church of the Holy Rood at Watford, Hammersmith Seminary, Beaumont Preparatory School, Braintree Convent, St. Mary's, Chelsea, &c., &c., and two portraits of the architect—one by W. X. Symons and the other by Le Brun—were exhibited in the council chamber. The drawings themselves were of the greatest interest and many of them displayed most skilful draughtsmanship. A few were by Bentley's own hand, and altogether they formed one of the most excellent collections that have been shown for some time.

The House at Barnt Green illustrated on this page is to be built of sand bricks, white stucco and half timber. The total cost will be about £2,000.



PROPOSED HOUSE AT BARNT GREEN, WORCESTERSHIRE. HORACE G. BRADLEY, ARCHITECT.

SOME SEWAGE PURIFICATION EXPERIMENTS.*

By J. CORBETT, M.S.I., Borough Engineer, Salford.

THE Salford sewage experiments have continued almost without intermission from May, 1889, to the present date. It is therefore impracticable to give any complete account of them within the limits of a short paper, so I propose to speak somewhat briefly and dogmatically of the results obtained by some of the most interesting of these experiments, passing by without reference numerous processes which did not eventually prove suitable to our requirements.

These requirements are dominated by our having to treat the sewage of a manufacturing town of nearly 250,000 inhabitants, where trade wastes in great variety are admitted to the sewers, and where a large quantity of mere land water enters the sewers. The sewage works were constructed about twenty years ago, on a site of only 34 acres, and any additional land would be very costly and difficult to acquire. But we have the great advantage of a wharf on the ship canal adjoining the sewage works, from which sludge, &c., may be shipped to sea at a moderate cost.

Webster's Electrolytic Process

of sewage purification was in many points the most unique, most scientific and most successful of the processes tried. Its cost was somewhat high, though by no means the highest considered practicable, and it would have been adopted for the Salford Sewage Works but for the inability of the company promoting it to finance so large a scheme.

In this process no chemical precipitants are used, but the sewage is passed between cast-iron plates, alternately connected with the positive and negative wires of a dynamo. The effect of this is much like that of chemical precipitants, the sewage being separated into clear liquid and flocculent particles which subside into sewage-sludge in ordinary precipitation tanks. The tank effluent contains fine particles of sesqui-oxide of iron which give it a rust tint, but this can be readily removed by rapid filtration through a fine sand and gravel filter, resulting in a perfectly bright and almost pure filtrate. About half the cost of working is for power to produce the electricity required, so this process might be cheap in a place where water-power was available. The company's offer was to treat the Salford sewage for twenty years at 6os. 3d. per million gallons, they providing all plant, &c., and the plant to be transferred at a valuation on the end of the term.

The "International" Process,

using "ferozine" as a precipitant and "polarite" in the filters, was tried three times very exhaustively. In my opinion the promoters of this process did much good by convincing people that sewage-tank effluent could be satisfactorily purified by filtration; but our experience has been that "polarite" has not the valuable qualities claimed for it, and that better results can be obtained from the cheapest available materials, such as crushed clinkers, cinders, coke-breeze, &c.

A great number of

Precipitation Processes,

depending on special chemical precipitants, were tried, generally on the full daily flow of 8,000,000 to 10,000,000 gals. in our old precipitation tanks, twelve in number, of about 5,000,000 gals. capacity; generally using six tanks only in series, giving 2,500,000 gals., or about one-quarter of a day's flow of working capacity; the other tanks being meantime emptied of sludge. Other experiments were tried in small tanks made to a scale of one-hundredth the capacity of the large tanks, and used with a proportionate flow of 100,000 gals. per day.

The results obtained in the small tanks with some of these special precipitants were really excellent, almost reaching the standard of the Mersey and Irwell Joint Board of one grain of oxygen required per gallon in a four hours' permanganate test. But no process produced equally good results in the large tanks, though I think that in some cases this was merely due to not having efficient machinery for mixing the precipitants with the sewage.

We thoroughly tested

Spence's Aluminoferric

in comparison with lime, especially as to the alleged great reduction in the sludge from the use of this special precipitant. The results proved that the *density* of the sludge was considerably decreased, but the *bulk of sludge* was proportionately increased, while the tank effluent was very similar. In our case this was a disadvantage, as we dispose of the sludge by shipping it to sea in a sludge steamer, where the bulk of sludge is the basis of cost, and the density of the sludge, within ordinary limits, does not affect the cost of disposal.

The best and cheapest results have been attained by the use of lime and a salt of iron, either sulphate of iron (that is, copperas) or chlorate of iron, or some special persalt of iron.

We now prepare the lime very carefully by the help of special machinery, first slaking the lime in circular pans with revolving stirrers; then passing the pan contents through a screen to separate out any stones, &c., and thence to other pans like mortar mills, with crushing rollers which promote the slaking of any hard granules of lime; the milk of lime being finally mixed with the whole flow of sewage in a tank with a revolving mixer, where a great turmoil is made by the flow from the pumping engines, by which about 85 per cent. of our flow of sewage has to be raised 30ft. to the precipitation tanks.

The salts of iron are dissolved in a small tank by the help of steam, and then added to the flow of sewage about 700ft. from the lime mixer; the stream passing from the iron mixing almost directly into the precipitation tanks.

The above-described precipitation system may seem antiquated in this era of septic tanks and contact beds, but our special circumstances render this more economical than any alternative I have yet studied. We have to deal with an old sewage works with precipitation tank of adequate size, and with only a moderate area available for filter beds or other appliances. It is therefore of the utmost importance to concentrate our work within a limited area; and as sludge can be sent to sea at the cost of less than 8d. per ton, it is cheaper to dispose of it thus than by the use of extensive contact beds, tanks, or other apparatus entailing heavy cost for construction and the use of valuable land.

The ultimate purification of the sewage by filters, or bacteria beds as they are now properly called, is also materially affected by the necessity for concentrated action.

I have come to the conclusion that for all densely-populated districts tanks and filters of one kind or another are preferable to sewage farms, and are more economical.

I also definitely conclude that no patent material for the construction of sewage filters is worth its cost, and that mere cinders, which can be obtained cheaply anywhere where coal is the ordinary fuel, are probably the very best material for such filters or bacteria beds.

I will now briefly trace our

Filtration Experiments,

only premising that while these filters were on trial we were also trying various precipitation systems in the tanks; so that the tank effluent was sometimes of bad quality, but generally fairly good. Analyses were made daily of samples taken about hourly, and I will give averages of the results attained, as a full detailed account would be too lengthy. These filters have always been used on the trickling system, with open outlet for filtrate and spent air. We never tried the system of filling, standing full, and then emptying, as it seems to me illogical, and does not deal with so large a flow as the trickling system.

After about twelve months' comparison of couples of filters, each of 14 sq. yds. area, formed respectively of gravel, of coke-breeze, and of cinders, the cinders proved slightly the most efficient.

We tried distribution over the filter surface by embedded troughs and a 3in. top of fine sand, but this soon got clogged and had to be renewed each month or two.

We then tried troughs about 1ft. above the surface, with small holes about 2ft. apart, and bits of board to break the small streams into drops over the surface. These did very well, but hindered the daily raking of the filter surface which we found requisite to ensure proper aëration.

We now begun to use roughing filters, made of 3ft. depth of gravel, or of small broken granite, to intercept any particles of wood, rag, straw, &c., in the precipitation tank effluent, and thus prevent their choking the surface of the final aërated filter-beds.

Finding the distribution by sprinklers very efficient, we removed the former top stratum of sand, and made all the future filters of one grade from top to bottom, that is, between riddles of two wires and of six wires to the lineal inch, but with a few inches of coarser material on the floor tiles.

We then tried sprinkler jets set in pipes about 1ft. above the surface, and worked under about 4ft. head of water. This system proved far the best in every way, but our first jets, though very efficient, were imperfect in that they dribbled somewhat and formed pools on the surface below each jets; these were simple upright nozzles of about $\frac{3}{8}$in. diameter, with brass discs or tones over them to break the stream into drops. Our second type of sprinkler jet was formed with $2\frac{1}{4}$in. holes inclined towards each other like an old-fashioned gas-jet; this was somewhat better but dribbled slightly. Ultimately we got a jet where the water is set whirling by passing through inclined holes in the lower part of the jet before reaching the top outlet, and this whirling movement throws out the water in a very fine spray over a circle of about 12ft. diameter; and as the jets are spaced 10ft. apart north and south and 5ft. 2in. apart east and west, the whole surface is very evenly sprinkled. But these jets are rather more difficult to clean out than the simpler ones, and all show a slight tendency to become coated with lime, more especially if a large quantity of this material is used as a precipitant.

We tried filters about 5ft. deep with three ventilated spaces in the height, some with two, some with one, and some ventilated only at the floor outlet. We also tried filters 8ft. deep, one with three intermediate ventilated floors and the outlet floor, the other with only the outlet floor. These floors were made of tiles or slates supported on bricks, and with couples of vent-pipes to each floor. The best results were obtained from the filters without any intermediate floors.

We tried filters in one height of cinders, one of 3ft. 6in. depth, one of 5ft. and one of 8ft. depth. The 8ft. one proved decidedly the best, more especially when reasonably worked; but when overworked with somewhat foul tank-effluent all the filters gave inferior filtrates, and for a time the 8ft. was worse than the 5ft., but on the average it was undoubtedly the best.

From the first we proposed 500 gals. per

* A paper read before the 1902 Congress of the Sanitary Institute at Manchester.



ST. LEONARD'S CHURCH, ST. ANDREWS. P. MACGREGOR CHALMERS, I.A., ARCHITECT. (*See next page.*)

sq. yd. per day, or about 2,500,000 gals. per acre, as the standard flow to be treated; but after gradually raising the daily flow during, say, twelve hours to this pitch, we increased it with two of the 5ft. filters up to 1,400 gals. per day, or 7,000,000 gals. per acre, before the filtrate became definitely below the standard of 1 grain of oxygen per gallon in a four hours' test. Two 8ft. filters were worked for about a year at 500 gals in twelve hours, leaving twelve hours resting time per day. They were then worked about twenty-three hours per day at 1,000 gals per sq. yd. for a year, with a few slight intermissions during repairs of the steam pump supplying them. The filtrate channel from these filters became coated with a bright-green growth, considered to be a sign of a good filtrate; but a small quantity of sewage fungus appeared at times in the outlet pipes.

The quality of the tank effluent put on the filters had a very direct effect on the quality of the filtrates, so much so that the efficiency of the filters for the very heavy flows here recorded deepened on their having a fairly good tank-effluent to deal with, and therefore we tried various ways of using the tanks in order to obtain the best possible tank-effluent.

We found definitely that whenever sludge was allowed to accumulate in the tanks an inferior effluent resulted. This appeared to be due firstly to the loss of tank-capacity from the mass of sludge collected in the tanks, and secondly to the putrefaction of this sludge, and its rising on gas bubbles into the upper part of the tanks, thus seriously fouling the sewage in the tanks.

I believe the best results would be obtained by removing the sludge from the tanks daily, and this should be done while the tanks are in use by suitable apparatus of which several types are available.

Having originally a dozen precipitation tanks, we made arrangements for using eight or ten of them separately, each with one-eighth or one-tenth the flow of sewage; we also tried four couples of tanks, each dealing with one-fourth of the flow. The remaining tanks being meantime cleared of sludge. We generally used the tanks as one series of six, the other six being meantime cleaned. They were once tried all twelve in series. The chemical analyses showed but slight differences in the effluents from these various systems, and slightly the best effluent was obtained from six tanks used in series.

The tanks, in each set of six, had originally a fall of 3in. from tank to tank, but this appeared to interfere with the precipitation, and a great improvement was effected by constructing a dam at the outlet of one set so as to submerge these falls, and make one pool from end to end of the six tanks.

All our tanks were eventually altered by lowering their division walls about 3ft., so as to make a very quiet pool from end to end; but as two tanks were required for use as roughing filters, each tank is now made from five of the original tanks. The result has been remarkably successful; less than half the chemical precipitants formerly used now proves sufficient to give a satisfactory effluent. This is with sludge removal once a week, in place of once a fortnight or once a month as previously practised. So it seems certain that if the sludge were removed once a day still better results would be obtained.

This tank-effluent is passed through roughing filters of gravel 3ft. deep, similar to those used during nearly all the filtration experiments. The special use of these roughing filters is to intercept particles of rag, wood, straw, &c., which would tend to choke the surface of the final filters.

During the experiments it was found that 75 per cent. of the matters in suspension were thus removed from the tank-effluent. This result was attained when the roughing filters had a reversed current upward washing each day, and had the gravel dug out and washed under a stream of water about there times a week.

Up to the present time the permanent roughing filters have not been provided with washing apparatus, except mere upward washing, and recent analyses showed that they are intercepting only from 25 to 50 per cent., instead of 75 per cent., of the matters in suspension.

Thus the sewage works are still incomplete and the excellent results attained during the many years of experimenting are not yet attained in the daily working on a large scale.

When the requisite machinery, &c., is provided for removing sludge from the precipitation tanks and for washing and raking the roughing filters and bacteria beds, I have no doubt that results as good as those from the experiments will be obtained with the whole flow of sewage, and even with a considerable addition of storm-water at times; and thus these long-continued experiments will result in a sewage purification system more economical in first cost, and probably also in working cost, than any system yet adopted in a large manufacturing town.

Keystones.

The Queen Victoria Memorial Fund now amounts to about £233,000.

The London Drawing and Tracing Office, 98, Gray's Inn Road, W.C., has just issued its calendar for 1903.

Extensive new Naval Barracks at Chatham are being constructed at a cost of about half a million sterling.

The next Exhibition of the Burlington Fine Arts Club will be devoted to ancient Greek art: marbles, bronzes, terra-cotta, gems, &c. It will be opened in May.

The Annual Exhibition of the R.I.B.A. Designs and Drawings for the Institute prizes and studentships 1902–03 will be held from Tuesday, January 20th, till Saturday, January 31st, at the Alpine Club (entrance in Mill Street, Conduit Street, W.), from 10 to 8 each day.

Herr Methesius, the present technical attaché to the German Embassy in London, who last year had the degree of Doctor conferred on him at Dresden for a work on English Architecture, has been appointed head of a new Department of Technical Education at the Berlin Board of Trade.

Truro Cathedral: Closed to Visitors after January 17th.—In consequence of the laying of the flooring of the nave of Truro Cathedral, the local building committee announce that after Saturday, January 17th, the permission hitherto granted to visitors to inspect the new building will be withdrawn until further notice.

Liverpool Architectural Society.—A lecture on "Mosaic Work" was delivered by Mr. C. Harrison Townsend on January 5th. Mr. Townsend dealt fairly fully with mosaic work among the Romans and its gradual adoption in the decorating of churches and cathedrals throughout Europe. There was a large attendance.

The Glasgow Architectural Association held a meeting on January 6th, when Mr. A. N. Malcolm read a paper on "Belgium and its Cities," illustrated by a large number of limelight views taken by himself. The president announced the result of the competition for his prize, Mr. A. F. Duncan's Italian sketches being placed first, while Mr. Whyte was awarded the monthly prize.

Architect's Life of Poverty.—A pathetic career recently closed with the death from apoplexy of George Nineham Moon, which occurred in a common lodging-house. During the inquest at Southwark deceased's son stated that his father was an architect and surveyor. His father received a college education, and how he had come down to his present circumstances witness could not say.

Glasgow Technical College Architectural Craftsmen's Society.—A lecture on "The Minute Structure and Methods of Distinguishing the Species of Wood" was delivered before the members of this Society on January 9th by Mr. G. F. Scott Elliott, M.A., B.Sc., Professor of Botany. Mr. C. Ernest Munro presided. The lecture, which was illustrated by models and lantern and microscopic slides, was most interesting and instructive.

The Arts and Crafts Society, whose seventh exhibition opens at the New Gallery this week, was founded about fifteen years ago through the efforts of a group of artists and designers, among whom Messrs. Walter Crane, Cobden-Sanderson, Heywood Sumner, W. R. Lethaby and W. A. S. Benson were prominent. All were workers in the movement of which William Morris was the originator, though according to his biographer, Mr. J. W. Mackail, Morris himself took no share whatever in the origination of the Arts and Crafts Society—in fact he rather threw cold water on the scheme.

Christ's Hospital Chapel, Horsham, which is now practically complete, will accommodate 820 boys.

A Mural Monument to the Memory of Dr. Martineau has been erected in Little Portland Street Unitarian Chapel, London. It was unveiled on Saturday.

A new Roman Catholic School at Lochgelly, Fifeshire, is being erected from designs by Mr. William Birrell, architect, of Kirkcaldy.

The Western Theological College at Bristol intend to build a new home for themselves from designs by Mr. H. Dare Bryan, F.R.I.B.A., of Bristol. The building will have two wings and a central tower between them 90ft. high. It will be of brick with stone dressings, and is estimated to cost £20,000.

Two Statues for Mr. C. Schwab, the American millionaire, are being executed by M. Gérôme. One represents metallurgic science in the form of a woman classically draped; the other depicts metallurgic execution—a stalwart ironworker wielding the instruments of his trade. Both statues are to be of bronze and larger than life-size.

Professor Aitchison's Academy Lectures.—Professor Aitchison, R.A., will devote his series of six lectures at the Royal Academy, commencing on February 16th, to the consideration of "Metallic Architecture: Enamelled Terra-Cotta: and Colour." Any exhibitor at last year's Academy can obtain a ticket for these lectures on application to the secretary, Burlington House, Piccadilly, W.

Lanchester Cottage Homes Scheme.—The Lanchester Board of Guardians have now begun to carry out their scheme for the erection of cottage homes, the architects of which are Messrs. Newcombe & Newcombe, of Newcastle, who were awarded the first premium in competition. Lanchester Workhouse is also to undergo considerable alterations.

The Union Mills, Batley, recently destroyed by fire, are to be rebuilt according to plans prepared by Messrs. Hanstock & Son, architects, of Batley; but all the contracts have not yet been let. The slater's work will be carried out by Mr. Jonas Thornton, of Heckmondwike; Messrs. Bagshaw will provide the ironwork; and Messrs. Walshaw & Wood will carry out the plumbing.

The Chair of Architecture at the Manchester Technical School.—At last week's meeting of the Manchester City Council, Alderman Sir James Hoy said the arrangement for the joint support of a chair of architecture by Owens College and the School of Technology was satisfactory. The school had greater facilities for carrying out the practical details of architectural work than Owens College could possibly have, and the work of the profession would be for the benefit of both institutions.

A Carriage Factory at Leighton Buzzard has been erected for Messrs. Morgan & Co., Ltd., carriage builders, of Long Acre, London. The works are on the site of a former factory destroyed by fire last year. The new buildings are of one storey only (skylights being provided the whole length of the roofs) and are glazed with Messrs. Pilkington's wired glass throughout. All the departments communicate with each other and have Messrs. Mather and Platt's armoured fireproof doors, which are self-closing in case of fire. Building operations were commenced at the end of September and the factory was again in use in less than three months. The architects were Messrs. S. & A. H. Salisbury, of Harpenden, and the builders Messrs. Phillips & Blake, of Harpenden. The heating system is being carried out by Messrs. Jones & Attwood, of Stourbridge.

The Year-Book of the Society of Architects for 1903 has just been issued. Its price is 2s.

Proposed new Town Hall for Stockport.—The Stockport Town Council have decided that the proposed new Town Hall shall not cost more than £60,000, to contain a public hall capable of seating 2,000 persons, in addition to council chamber, committee-rooms and accommodation for the various departments of the Corporation.

New Motor Works at Chiswick.—The Thornycroft Steam Waggon Co. are just completing their motor works and offices at Hogarth Lane, Chiswick. The buildings comprise a very large addition of factory space. Messrs. Scott & Hansom, of 10, Basinghall Street, E.C., are the architects, and Mr. S. Hunt is the builder.

Venetian Buildings.—A crack in two arches of the Procuratie Vecchie, on the Piazza of St. Mark, Venice, erected four hundred years ago, occurred on January 8th. Some mortar was removed in order that the state of the roof might be examined, and it was found that some of the bricks were no longer holding together, and that a portion of the façade had become detached.

York Minster: Scaffolding removed from North-West Tower.—The whole of the immense structure of scaffolding which for the past three years has been an eyesore at the north-west tower of York Minster has now been removed, and this tower stands clear of any obstruction. The staging has been erected in front of the south-west tower and the west front, and the work of restoring these parts will go on simultaneously.

St. Mark's Campanile: Music for a Poem Wanted.—An international prize has been offered by a committee of ladies from Trieste and Istria to the person who composes the best musical score to a poem entitled "Pro San Marco e Divo Sansovino," which was selected as the best poem among many sent up some time ago in a private competition started in aid of the fund for the restoration of the Campanile of St. Mark. The prize consists of a thousand crowns in gold, a picture and a diploma of honour.

Edinburgh Architectural Association.—The president (Mr. A. Hunter Crawford) delivered the first of a series of papers on the "Building of a House" on Wednesday last. The papers deal with an actual building, and are intended to bring the methods of construction definitely and clearly before the members of the Association. Last Wednesday Mr. Crawford traced the erection of the house from the time an application was made to the local authorities until the foundations were laid, and the building brought up to the damp-course level.

ST. LEONARD'S CHURCH, ST. ANDREWS.

THE plan of this church, which is illustrated on the preceding page, consists of a long nave and one side aisle, with an apse at the end of the nave for the communion table, and one at the end of the side-aisle which serves as a baptistery. It is intended to decorate the vaults of these apses in mosaic or fresco. The organ and choir are situated in the base of the tower. The style adopted is Norman, richly decorated and moulded, and the walls throughout are finished in finely-tooled ashlar. The roofs are of dressed timber open to the ridge. Vestries and session-room are also provided. The church accommodates 480 persons, and will cost about £5,000. The architect is Mr. P. Macgregor Chalmers, of 95, Bath Street, Glasgow.

Builders' Notes.

Ninety-eight Building Societies were dissolved during 1901. The total deficiency was £94,119, and the total amount realized £952,874.

New School, Hilda Road, Canning Town, E.—The West Ham School Board have accepted the tender (£20,925) of Messrs. Gregor & Son for the erection of this building.

Bradford's New Baths.—It is stated that most of the tenders for the erection of new central baths in Bradford have now been let, and that they are considerably under the first estimate of £34,000.

Messrs. Easton & Co., Ltd., engineers, of Broad Sanctuary Chambers, London, S.W., have secured the order for the complete installation of electric lifts (nineteen in number) for the new Midland Grand Hotel at Manchester, now in course of construction.

The Tenders for the New Manchester Fire Station were opened at last Thursday's meeting of the Watch Committee. They were referred to a sub-committee for consideration, with power to select the most suitable, subject to the approval of the council.

Coincidence in Names.—The contractors for the demolition of Newgate are Messrs. Holloway Brothers, and the gentleman who is acting as clerk is a Mr. Scrubbs. A few years ago the contractor for the pulling down of the King's Head, Old Jewry, was Oliver Cromwell.

Subways in New London Streets.—The London County Council are constructing subways in all new thoroughfares in the metropolis, and in others where the scheme is practicable, through which all the gas and water mains, electric cables and telephone wires will run. The roadway in the Strand near the Law Courts has just been closed so that the Council may commence to excavate a subway along the new frontage as far as Wellington Street.

Building at Sunderland in 1902.—The annual report of the Sunderland Building Committee shows that during the year 1902 the plans presented for new houses and other buildings numbered 173, of which 163 were approved. The 163 represent 793 houses, of which 188 were to be one storey in height, 352 one and a half storeys, and 253 two or more storeys. Nineteen estate or street plans were before the Committee, and fourteen of these received approval. Certificates of completion were given in respect of 530 houses.

The Timber Trade in 1902.—The annual reviews by the leading firms engaged in the timber trade show that the past year was, unlike its predecessor, on the whole, a fairly favourable one for importers and retailers of the various descriptions of wood. In the preceding year prices had fallen heavily, and disastrous losses were sustained by many importers. In September, however, an improvement set in, owing to the cessation of the vast supplies which had been pouring into the country, and, the efforts made to curtail the influx of timber having proved successful, the market became distinctly healthier in the early part of last year. Despite the fact that the Cape demand proved very disappointing to shippers, prices advanced in July to the level at which they have remained practically ever since. Any further rise has been prevented by a heavy stream of importation, lasting throughout August, September and October, and, for the first time for some years, by symptoms of a weakening demand for consumption. During the past year the total value of the wood imported into the United Kingdom, according to the Board of Trade returns, was £25,189,000, as compared with £24,599,000 in the preceding twelve months, £27,877,000 in 1900, and £24,232,000 in 1899. Last year's total, though larger than that of the year before, was, Messrs. Foy, Morgan & Co. state, sufficiently limited to assist in the process of reducing the abnormal stocks held here since the heavy import of 1900.

Engineering Notes.

An extensive Improvement at Yarmouth is being carried out south of the harbour by extending the parade, laying-out gardens on top of the cliffs, and erecting shelters in the slopes facing the sea.

The Planimeter.—The paper on the planimeter, explained simply without mathematics, which was read by Mr. W. J. Tennant, A.M.I.C.E., before the Institution of Junior Engineers in December last, has now been republished as a small pamphlet.

Dover's Electric Supply.—A ratepayers' meeting was held at Dover last week to consider the proposal of the Corporation to take over the electricity supply undertaking at a cost of £155,000. There was much opposition, and after the mayor had declared carried the resolution in favour of the proposal, a poll of the town was demanded. This will cost about £500.

A new Sea Wall and Promenade at Cleethorpes is to be constructed by Messrs. J. & M. Patrick, Wandsworth. It will continue on to the promenade and wall owned by the Great Central Railway Co. The cost will be £12,278, and the contractors undertake to complete the work within ten months from the date they receive instructions to commence operations. When completed the new promenade will be known as "King's Parade," and will be about 640yds. long.

The Andrew Carnegie Research Scholarship.—Applications for this scholarship must be sent in before February 28th next. Candidates, who must be under thirty-five years of age, must apply on a special form before the end of February to the secretary of the Iron and Steel Institute, at 28, Victoria Street, S.W. The object of the scheme is not to facilitate ordinary collegiate studies, but to enable students who have passed through a college curriculum, or have been trained in industrial establishments, to conduct researches in the metallurgy of iron and steel and allied subjects, with the view of aiding its advance or its application to industry. Last year the Andrew Carnegie gold medal was awarded to Dr. J. A. Mathews, New York, and scholarships (each of the value of £100) were awarded to O. Boudouard (Paris), W. Campbell (New York), A. Campion (Cooper's Hill), P. Longmuir (Manchester), E. Schott (Berlin) and F. H. Wigham (Wakefield).

The First of Two Artesian Wells which are being sunk at Salisbury House, London Wall, is completed, and has proved conclusively that there is practically an inexhaustible supply of water under London. The two bore holes are 7¼in. in diameter, and 450ft. deep. The strata passed through are as follows:—Grey ballast, 3ft.; dark grey clay, 36ft.; dark grey clay and stones, 24ft.; dark grey clay, 47ft.; grey sand and mottled clay, 2ft.; mottled clay, 31ft.; mottled clay and hard pebbles, 3ft.; green sand and pebbles, 17ft.; hard grey sand, 11ft.; live grey sands, 28ft.; black pebbles, 2ft.; chalk and flints, 246ft.; total, 450ft. The water level has risen to a height of 123ft. from the surface. The deep well pumps are of special design, so as to be noiseless, and they will be run with electric motors. An elaborate system of storage has been provided at the top of the building and in the basement, the water being kept in circulation with duplicate sets of electrically-driven pumps. The work is being carried out by Messrs. Alfred Williams & Co., of Artesian Works, Bow, E.

Masters and Men.

The Bricklayers of Coalville are considering a notice sent by the Master-Builders' Association as to a reduction of a ½d. an hour in wages, to commence in April. The feeling is against reduction, and in view of the building operations usual in Spring the men are likely to hold out. They are now paid at the rate of 8½d. an hour.

New Companies.

Metropolitan Brick Co. (Blomfontein), Ltd.

Registered with objects as indicated by the title. Capital £1,500 in £1 shares. Registered office: 50, Pier Road, Erith, Kent.

Manchester Granite Flag Co., Ltd.

Registered to adopt an agreement with C. Musker & A. Musker, and another agreement with Charles & Arthur Musker (1901), Ltd., and to carry on the business therein referred to. Capital £2,000 in £1 shares. Registered office: Delamere Road, Levenshulme, Manchester.

Current Market Prices.

FORAGE.

		£ s. d.	£ s. d.
Beans	per qr.	1 9 9	1 12 3
Clover, best	per load	4 10 0	5 0 0
Hay, best	do.	3 15 0	5 10 0
Sainfoin mixture	do.	3 15 0	4 5 0
Straw	do.	1 8 0	1 18 0

OILS AND PAINTS.

Castor Oil, French	per cwt.	1 3 11	—
Colza Oil, English	do.	1 4 0	—
Copperas	per ton	2 0 0	—
Lard Oil	per cwt.	2 13 0	2 14 0
Lead, white, ground, carbonate	do.	1 4 10	—
Do. red	do.	1 0 4½	
Linseed Oil, barrels	do.	1 4 9	—
Petroleum, American	per gal.	0 0 6	0 0 6½
Do. Russian	do.	0 0 4¼	0 0 4½
Pitch	per barrel	0 7 0	—
Shellac, orange	per cwt.	6 3 0	—
Soda, crystals	per ton	3 2 6	3 5 0
Tallow, Home Melt	per cwt.	1 10 3	1 11 0
Tar, Stockholm	per barrel	1 1 6	—
Turpentine	per cwt.	2 1 9	—

METALS.

Copper, sheet, strong	per ton	67 0 0	—
Iron, Staffs., bar	do.	6 5 0	8 10 0
Do. Galvanised Corrugated sheet	do.	11 5 0	11 10 0
Lead, pig, Soft Foreign	do	11 5 0	11 7 6
Do. do. English common brands	do.	11 7 6	11 10 0
Do. sheet, English 3lb. per sq. ft. and upwards	do.	13 10 0	—
Do. pipe	do.	14 0 0	—
Nails, cut clasp, 3in. to 6in.	per ton	9 5 0	—
Do. floor brads	do.	9 0 0	—
Steel, Staffs., Girders and Angles	do.	5 15 0	6 5 0
Do. do. Mild bars	do.	6 10 0	7 0 0
Tin, Foreign	do.	126 5 0	126 15 0
Do. English ingots	do.	127 0 0	127 2 6
Zinc, sheets, Silesian	do	24 0 0	—
Do. do. Vielle Montaigne	do.	24 0 0	—
Do. Spelter	do.	20 0 0	20 2 6

TIMBER.

SOFT WOODS.

Fir, Dantzic and Memel	per load	1 13 0	3 0 0
Pine, Quebec, Yellow	do.	5 5 0	6 5 0
Do. Pitch	do.	3 0 0	3 4 0
Laths, log, Dantzic	per fath.	4 10 0	5 10 0
Do. Petersburg	do.	8 10 0	—
Deals, Archangel 2nd & 1st	per P.Std.	10 5 0	15 5 0
Do. do. 4th & 3rd	do.	10 5 0	12 15 0
Do. do. unsorted	do.	5 12 6	6 10 0
Do. Riga	do.	6 15 0	12 10 0
Do. Petersburg 1st Yellow	do.	16 10 0	—
Deals, Petersburg 2nd Yell.	per P. Std.	9 0 0	17 5 0
Do. do. White	do.	18 15 0	11 10 0
Do. Swedish	do.	5 15 0	16 15 0
Do. White Sea	do.	12 15 0	15 5 0
Do. Quebec Pine, 1st	do.	17 15 0	18 5 0
Do. do. 2nd	do.	13 0 0	—
Do. do. 3rd &c.	do.	8 10 0	13 15 0
Do. Canadian Spruce 1st	do.	—	12 0 10
Do. do. 3rd & 2nd	do.	9 0 0	10 5 0
Do. New Brunswick	do.	7 15 0	8 0 0
Battens, all kinds	Per P. Std.	6 10 0	12 5 0
Flooring Boards 1in. prepared, 1st	per square	0 9 9	0 11 6
Do. 2nd	do	0 7 9	0 11 3
Do. 3rd &c.	do	0 7 3	9 9 0

Complete List of Contracts Open.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDERS MAY BE OBTAINED.
	BUILDING:		
Jan. 15	Pentre, Glamorgan—Alterations, &c.	Building Committee	W. D. Morgan, Victoria Chambers, Pentre.
,, 15	Manchester—Three pairs of Semi-detached Cottages	Guardians	Newcombe & Newcombe, 89 Pilgrim Street, Newcastle-upon-Tyne.
,, 15	Bovevagh, Ireland—Alterations, &c.	Building Committee	Rev. T. E. Culbert, Manor House, Dungiven, Co. Derry
,, 15	Lanchester—Cottages	Guardians	Newcombe & Newcombe, 89 Pilgrim Street, Newcastle-upon-Tyne.
,, 16	Ashton-under-Lyne—Conveniences	Corporation	H. Lindley Architect, Market Avenue, Ashton.
,, 16	Kendal—Walls, &c.	Corporation	R. H. Clucas, Borough Engineer & Surveyor, Town Hall, Kendal.
,, 16	Canterbury—Repairs, &c.	Borough Asylum	W. J. Jennings, 4 St. Margaret's Street, Canterbury.
,, 16	Water Fulford, near York—Asylum		A. Creer, Architect, Guildhall, York.
,, 16	London, E.—Four Cubicles, &c.	St. George's-in-the-East Guardians.	J. R. Browne, Guardians' Office, Raine Street, Old Gravel Lane, E.
,, 17	London, N.—Alterations, &c.	Urban District Council	H. T. Wakelam, Guildhall, Westminster, S.W.
,, 19	Swansea—Stone Facing	Town Council	H. A. Dix, Manager, Cray Reservoir Works, Breconshire.
,, 19	Wemyss Bay and Inverkip, Scotland—Station Buildings	Caledonian Railway Co.	Engineer, Buchanan Street, Glasgow.
,, 19	Harelaw, Durham—Bridge	Weardale Rural District Council	G. W. Egglestone, Highway Surveyor, Stanhope.
,, 19	Merthyr Tydfil—Cottages	Bronheulog Building Club	D. Edwards, Cambria Chambers, North Street, Dowlais.
,, 19	Rochdale—Dressing Boxes, &c.	Public Baths Committee	S. S. Platt, Borough Surveyor, Rochdale.
,, 20	Shrewsbury—Abutments, &c.	Joint Committee	Joint Engineer, L. & N.W. & N.W. & Gt. W. Ry. Co., Shrewsbury Station.
,, 20	Londonderry—Branch Premises and Hall		Equitable Co-operative Society, Ltd., 59 Strand Rd, Londonderry.
,, 20	London, S.E.—Car Shed	London County Council	Clerk of the L.C.C., Spring Gardens, S.W.
,, 20	London, N.—Stables, &c.	Urban District Council	W. H. Prescott, 712 High Road, Tottenham.
,, 20	Lanchester—Outbuildings	Guardians	Newcombe & Newcombe, 89 Pilgrim Street, Newcastle-on-Tyne.
,, 20	London, N.E.—Dwellings	London County Council	Housing Section, Architect's Dept., 19 Charing Cross Rd., S.W.
,, 20	Devizes—Ward	Lunatic Asylum	C. S. Adys, County Offices, Trowbridge.
,, 22	Camborne, Cornwall—Offices and Fire Station	Urban District Council	S. Hill, Architect, Redruth.
,, 22	Middleton, Lancs—Post Office		Stones & Stones, 10 Richmond Terrace, Blackburn.
,, 24	Edinburgh—School	School Board	Mr. Carfrae, 3 Queen Street, Edinburgh.
,, 24	Leeds—Retort Houses	Gas Committee	R. H. Townsley, Gas Offices, Municipal Buildings Leeds.
,, 24	Sunderland—Church and Schools		J. Potts & Son, 57 John Street, Sunderland.
,, 24	Birmingham—Bricks	Public Works Committee	Storekeeper, Lamp Department, Park Street, Birmingham.
,, 24	Langley Park, near Durham—Workmen's Club	Committee	F. H. Livesay, Architect and Surveyor, Bishop Auckland.
,, 25	Onllwyn, Wales—Alterations, &c.	Dylais Higher School Board	J. C. Rees, St. Thomas's Chambers, Neath.
,, 26	Walthamstow—School, &c.	School Board	H. Prosser, Architect, School Board Offices, Walthamstow.
26	London, S.W.—Convenience	Borough Council	Surveyor's Office, 215 High Road, S.W.
,, 30	Birmingham—Cottages	Corporation	J. Mansergh & Sons, 5 Victoria Street, Westminster.
,, 31	Bexley Heath, Kent—Adaptation	Urban District Council	W. T. Hawse, Surveyor to the Council, Bexley Heath.
Feb. 6	Cape Town—Locks		Controller of Stores, General Post Office, Cape Town.
,, 6	The Needles, Isle of Wight	Coast Guard Buildings	Superintending Engineer, Portsmouth Dockyard.
,, 9	Walsall—School, &c.	School Board	Bailey & McConnal, Bridge Street, Walsall.
No date	Winchester—House		Colson, Farrow & Nisbett, 45 Jewry Street, Winchester.
,,	Swindon—Church, &c.		G. A. Lansdown 9 Regent Street, S.W.
,,	Haworth, Yorks—Houses		A. Booth, South View, Haworth.
,,	Dunmow—Cottages		Hasler & Clapham, Dunmow, Essex.
,,	Clacton-on-Sea	W. Downey	G. Gardiner, 5 Maine Parade, Clacton-on-Sea.
,,	Carlisle—Buildings	Walter Scott	Oliver & Dodgshun, Architects, Carlisle.
,,	Bulwell, Notts—Additions	Co-operative Society, Ltd.	W. V. Belts, Bank Offices, Old Basford.
,,	Ashton-under-Lyne—Houses		T. George & Son, Architects, Old Square, Ashton-under-Lyne
	ENGINEERING:		
Jan. 15	Egremont, Cheshire—Electrical Plant	Wallasey U.D.C.	J. H. Crowther, Engineer, Great Float, near Birkenhead.
,, 15	Milton-next-Sittingbourne—Waterworks	Urban District Council	G. F. Deacon, 16 Great George Street, Westminster, S.W.
,, 15	Shrewsbury—Altering Bridge, &c.	Joint Committee	Joint Engineer, Shrewsbury Station.
,, 15	Dublin—Barges	Commissioners of Irish Lights	O. Armstrong, Irish Lights Office, D'Olier Street, Dublin.
,, 16	South Molton, Devon—Gasworks Extensions	Town Council	L. Riccard, Town Clerk, South Molton, Devon.
,, 16	London, E.—Steam Dynamo	Stepney Borough Council	A. Wright, 27 Osborn Street, Whitechapel, E.
,, 17	Dundee—Boosters, &c.	Gas Commissioners	W. H. Tittensor, Dunhope Crescent Road, Dundee.
,, 17	Colchester—Wiring	Committee of Hospital	Borough Electrical Engineer's Office, Stanwell Street, Colchester.
,, 17	Wigan—Adit Driving	Corporation	T. L. Hughes, Waterworks Offices, Chapel Lane, Wigan.
,, 18	Mit Ghamr, Egypt—Ironwork Head Sluice		Chef du Service Administratif, Cairo.
,, 19	London, S.E.—Arc Lamp Columns	Borough Council	W. H. Vincent, Electricity Works, The Neckinger, London, S.E.
,, 20	Cowes, Isle of Wight—Bridge	Urban District Council	J. W. Webster, Engineer to the Council, Cowes.
,, 20	Wealdstone—Sewage Outfall Works	Urban District Council	C. N. Lailey, 6 The Sanctuary, Westminster, S.W
,, 20	London, E.—Bridge Reconstruction	London County Council	Engineer's Department, County Hall, Spring Gardens, S.W.
,, 20	Erith, Kent—Filth Screens, Hydraulic Engines, &c.	London County Council	Engineer's Department, County Hall, Spring Gardens, S.W.
,, 20	Street, Somerset—Waterworks	Urban District Council	A. P. I. Cotterell, 28 Baldwin Street, Bristol.
,, 20	Liverpool—Pumps, &c.		R. P. Allenby, 16 Cook Street, Liverpool.
,, 20	Liverpool—Waterworks	Corporation	Water Engineer's Office, Municipal Buildings, Liverpool.
,, 21	Hull—Cars	Corporation	A. E. White, City Engineer, Town Hall, Hull.
,, 21	Wellington, New Zealand—Tramways, &c.	City Council	W. R. Wright, 3 Victoria Street, Westminster
,, 21	London, S.E.—Heating	Southwark Borough Council	Borough Engineer, 81 Borough Road, S.E.
,, 21	Amsterdam—Materials		Netherlands Minister of Colonies.
,, 22	Ipswich—River Work, &c.	Corporation	W. Bantoft, Town Clerk, Town Hall, Ipswich.
,, 23	Atherton, Lancs—Switchboard, &c.	Urban District Council	D. Schofield, Town Hall, Atherton.
,, 23	Doncaster—Boiler, &c.	Corporation	W. Wyld, Electricity Works, Grey Friars Road, Doncaster.
,, 23	Ipswich—Rolling Stock	Corporation	W. Bantoft, Town Clerk, Town Hall, Ipswich
,, 24	Burnham-on-Crouch—Lighting	Urban District Council	E Dilliway, Clerk, Burnham-on-Crouch.
,, 24	Scrabster, Caithness, Scotland—Harbour Extension	Harbour Trustees	J. Barron, 1 Bonaccord Street, Aberdeen.
,, 26	Aberdeen—Railway Widening	Caledonian Railway Co.	Company's Engineer, Buchanan Street Station, Glasgow.
,, 28	London, S.W.—Timber Jetty	Chelsea Borough Council	T. W. E. Higgens, Town Hall, King's Road, Chelsea, S.W.
,, 31	Tynemouth—Batteries	Corporation	C. Turnbull, Electricity Works, Tynemouth.
,, 31	Smethwick—Refuse Destructor		C. J. F. Allen, Town Hall, Smethwick.
,, 31	Newcastle-on-Tyne—Launch	Improvement Commissioners	R. Urwin, Bewick Street, Newcastle-on-Tyne.
Feb. 12	Quayaquil, Ecuador, South America—Lighting	Municipal Council	Ecuadorian Consulates, 35 Chapel Walks, Liverpool.
,, 26	Bulawayo, Rhodesia—Electric Tramway	Municipal Council	Davis & Soper, 54 St. Mary Axe, E.C.
,, 28	Singapore—Graving Dock	Tanjong Pagar Dock Co., Ltd.	Tanjong Pagar Dock Co., Ltd., 120 Fenchurch Street.
No date	Pontrhydyfen, Wales—Extending Slant	L. Howell & Co.	L. Howell & Co., Port Talbot.
	FURNITURE:		
Jan. 15	Kilkenny, Ireland—Mattresses, &c.		K Comerford, Clerk, Workhouse, Kilkenny.
	IRON AND STEEL:		
Feb. 15	Ottawa—Rails		L. K. Jones, Secretary, Department of Railways, Canals, Ottawa.
,, 15	Dublin—Steel Barges	Commissioners of Irish Lights	O. Armstrong, Irish Lights Office, D'Olier Street, Dublin.
,, 17	Derby—Pipes	Corporation	Borough Surveyor's Office, Babington Lane, Derby.
,, 20	Southall, Middlesex—Fencing and Gates	Urban District Council	R. Brown, Engineer, Public Offices, Southall.
,, 24	Stockport—Rails, &c.	Tramways Committee	J. Atkinson, Borough Surveyor, Central Buildings, Stockport.
,, 24	Bradford—Tram Rails	Corporation	J. H. Cox, City Engineer, Town Hall, Bradford.
,, 24	Bradford—Steel Poles	Corporation	J. H. Cox, City Engineer, Town Hall, Bradford.
,, 24	Leeds—Roof Principals	Gas Committee	R. H. Townsley, Gas Offices, Municipal Buildings, Leeds.
,, 26	London, N.—Iron Railways, &c.	Urban District Council	G. E. Eachus, Engin. to the Council, Town Hall, Lwr. Edmonton.
,, 27	Hastings—Pipes	Corporation	P. H. Palmer, Waterworks Engineer, Town Hall, Hastings.
,, 28	London, S.W.—Supplies	Chelsea Borough Council	T. Holland, Town Hall, King's Road, Chelsea, S.W.
,, 31	Glasgow—Pipes	Corporation	J. M. Gale, 45 John Street. Glasgow.
Feb. 6	Cape Town—Locks		Agent-General for Cape Colony, 100 Victoria Street, S W.
	PAINTING AND PLUMBING:		
Jan. 17	Sheffield—Oils, &c.	Tramways Committee	A. L. C. Fell, General Manager, Town Hall, Sheffield.
,, 28	London, S.W.—Supplies	Chelsea Borough Council	T. Holland, Town Hall, King's Road, Chelsea, S.W.
Feb. 2	Manchester—Painting	Yorks Railway Co.	Engineer's Office, Hunt's Bank, Manchester.

Complete List of Contracts Open —*continued.*

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDERS MAY BE OBTAINED.
	ROADS AND CARTAGE:		
Jan. 15	London, E.—Making-up	Poplar Borough Council	Borough Surveyor, Council Offices, High Street, Poplar.
,, 16	Bournemouth—Carts and Vans	Town Council	F. W. Lacey, Borough Engineer and Surveyor, Bournemouth.
,, 16	Preston—Paving, &c.	Corporation	Borough Surveyor, Town Hall, Preston.
,, 16	Cape Town—Cartage		Agent-General of the Colony, 100 Victoria Street, S.W.
,, 17	Banbury—Stone	Town Council	N. H. Dawson, Borough Surveyor, Town Hall, Banbury.
,, 17	Bridgwater Somerset—Stone	Rural District Council	T. M. Reed, Clerk, Bridgwater.
,, 17	Willenhall, Staffs—Road Works	Urban District Council	T. E. Fellows, Engineer and Surveyor, Town Hall, Willenhall.
,, 17	Woking—Kerb	Urban District Council	G. J. Wooldridge, Surveyor, Bank Chambers, Woking.
,, 19	Warrington—Setts	Paving and Sewage Committee	T. Longdin, Borough Engineer and Surveyor, Town Hall, Warrington.
,, 19	London, N.W.—Private Improvements	Hendon U.D.C.	S. S. Grimley, Engineer, Council Offices, Hendon, N.W.
,, 20	Brentford—Making up Lamb Passage	Urban District Council	N. Parr, Clifden House, Boston Road, Brentford.
,, 2	Hollingbourn, Maidstone—Materials	Rural District Council	H. J. Bracher, 33 Earl Street, Maidstone.
,, 21	Arundel, Sussex—Cartage	Gas Committee	A. Holmes, Secretary, Arundel.
,, 22	Castleford—Improvement Works	Urban District Council	W. Green, Surveyor, Council Offices, Castleford.
,, 27	West Ham—Making up Streets	County Borough	F. E. Hilleary, Town Hall, West Ham, E.
Feb. 10	Middlesex—Materials for Road Widening	County Council	H. T. Wakelam, Middlesex Guildhall, Westminster, S.W.
	SANITARY:		
Jan. 20	Erith, Kent—Filth Screens, &c.	London County Council	Engineer's Department, County Hall, Spring Gardens, S.W.
,, 21	Altofts, near Wakefield—Sewage-Disposal Works	Sewage Disposal Works	F. Massie, Tetley House, Wakefield.
,, 26	Curdworth, near Birmingham—Sewerage Works	Rural District Council	Willcox & Raikes, Union Chambers, 63 Temple Row, Birmingham.
,, 26	Minworth, near Birmingham—Sewerage Works	Rural District Council	Willcox & Raikes, Union Chambers, 63 Temple Row, Birmingham.
,, 28	Audenshaw, Lancs—Sewers	Urban District Council	J. P. Wilkinson, 47 and 48 Arcade Chambers, St. Mary's Gate. Manchester.
,, 29	Lingfield, Surrey—Sewer, &c.	Rural District Council	A. Williams & Son, 14 Victoria Street, Westminster.
	TIMBER:		
Jan. 15	Scarborough—Firewood, &c.	Guardians	Workhouse Master, Scarborough.
,, 17	Mountain Ash, Wales—Matchboarding		G. A. Evans, Incorportd. Accountant, Ffrwd Offices, Mountain Ash.
,, 24	Birmingham—Timber	Public Works Committee	City Surveyor's Office, Council Office, Birmingham.
,, 28	London, S.W.—Wood Blocks	Chelsea Borough Council	T. Holland, Town Hall, King's Road, Chelsea, S.W.

List of Competitions Open.

DATE OF DELIVERY.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Jan. 15	Kingston-on-Thames—Cottage Homes for Children	£25, £15, £10.	J. Edgell, Clerk to Guardians, Coombe Lane, Kingston-on-Thames.
,, 20	Workington—Public Library	£25, £15, £10.	W. L. Eaglesfield, Borough Surveyor, Workington.
,, 31	Cape Town—University Buildings	£400, £200, £100.	Agent-General for the Cape of Good Hope, London.
,, 31	Hull—Town Hall Extension	£300, £200, £100.	E. Laverack, Town Clerk, Town Hall, Hull.
Feb. 10	Winchester—Recreation Ground	£75 and £25.	W. Bailey, Town Clerk, Guildhall, Winchester.
,, 13	Patras, Greece—Church	£400, £160, £80.	Committee for new Church of St. Andrew, Patras, Greece.
,, 20	Sutton Coldfield—Town Hall	£50, £30, £20.	W. A. H. Clarry, Borough Surveyor, Council House, Sutton Coldfield.
,, 28	Bridgwater—Appliances for Silt Disposal		W. T. Baker, Town Clerk, King Square, Bridgwater.
March 4	Wycombe—Town Hall, &c.	£105 and £26 5s.	T. J. Rushbrooke, 77 Easton Street, Wycombe.
,, 31	Hull—Extension of Town Hall	£300, £200, £100.	E. Laverack, Town Clerk, Town Hall, Hull.
,, 31	Castleford, Yorkshire—Public Library	£15, £10.	H. A. Broadbent, Clerk to Urban District Council, Castleford, Yorkshire.

Coming Events.

Wednesday Jan. 14.

EDINBURGH ARCHITECTURAL ASSOCIATION (Associates' Section).—Mr. R. Traquair on "Scottish Domestic Detail," 8 p.m.

NORTHERN ARCHITECTURAL ASSOCIATION.—Mr. H. Cayley, M.A., A.R.I.B.A., on "Some Special Features of Somersetshire Churches," 7.30 p.m.

JAPAN SOCIETY.—Mr. W. Crewdson on "The Dawn of Western Influence in Japan," 8.30 p.m.

ARCHÆOLOGICAL ASSOCIATION.—Meeting at 8 p.m.

Thursday, Jan. 15.

LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.—Mr. Arthur Marshall, A.R.I.B.A., on "Rome: Ancient and Modern," 6 30 p.m.

SOCIETY OF ANTIQUARIES OF LONDON.—Meeting at 8.30 p.m.

LONDON INSTITUTION.—The Rev. Walter Marshall, M.A., on "The Romance of Architecture," 6 p.m.

ROYAL INSTITUTION.—Mr. A. J. Evans on "Pre-Phœnician Writing in Crete and its bearings on the history of the Alphabet," I., 5 p.m.

Friday, Jan. 16.

INSTITUTION OF CIVIL ENGINEERS (Students' Meeting).—Prof. W. C. Unwin, B.Sc., F.R.S., M.I.C.E., on "The Measurement of Water," 8 p.m.

INSTITUTION OF MECHANICAL ENGINEERS.—Nominations for Annual Election of Officers. Mr. H. E. Donaldson on "The Cutting Angle of Tools for Metal work," 8 p.m.

ROYAL INSTITUTION.—Professor Dewar on "Low Temperature Investigations," 9 p.m.

Saturday, Jan. 17.

JUNIOR INSTITUTION OF ENGINEERS.—Visit to new Electricity Works of the Metropolitan Borough of Shoreditch, Whiston Street, Haggerston, at 3 p.m.

Monday, Jan. 19.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.—Deed of Award of Prizes and Studentships for 1902-3, Prof H. E. Armstrong on "Science Workshops for Schools and Colleges," 8 p.m.

LIVERPOOL ARCHITECTURAL SOCIETY (Members' meeting).—Discussion on the Recent Regulations as to Streets and Buildings.

SURVEYORS' INSTITUTION (Junior meeting).—Mr. A. J. Latham on "Dilapidations," 7 p.m.

Tuesday, Jan. 20.

MANCHESTER SOCIETY OF ARCHITECTS.—Mr. Warren Blackshaw on "Acoustics in relation to Architecture."

SOCIETY OF ARTS (Applied Arts Section).—Mr. G. F. Bodley, R.A., on "Principles which should guide all Applied Art," 8 p.m.

GLASGOW ARCHITECTURAL ASSOCIATION.—Mr. J. Donald Mills on "Architecture in North Staffordshire," 8 p.m.

Wednesday, Jan. 21.

RUSKIN SOCIETY OF BIRMINGHAM.—Prof. C. H Harford on "The Gothic Revival and its place among Nineteenth-Century Ideals," 7.45 p.m.

SOCIETY OF ARTS.—Mr. A. Sonnenschein on "The Metric System."

CHEMICAL SOCIETY.—Meeting at 5 30 p.m.

EDINBURGH ARCHITECTURAL ASSOCIATION.—Mr. J. A. Gotch on "The Homes of Queen Elizabeth's Courtiers," 8 p.m.

NORTHERN ARCHITECTURAL ASSOCIATION.—Students' Evening.

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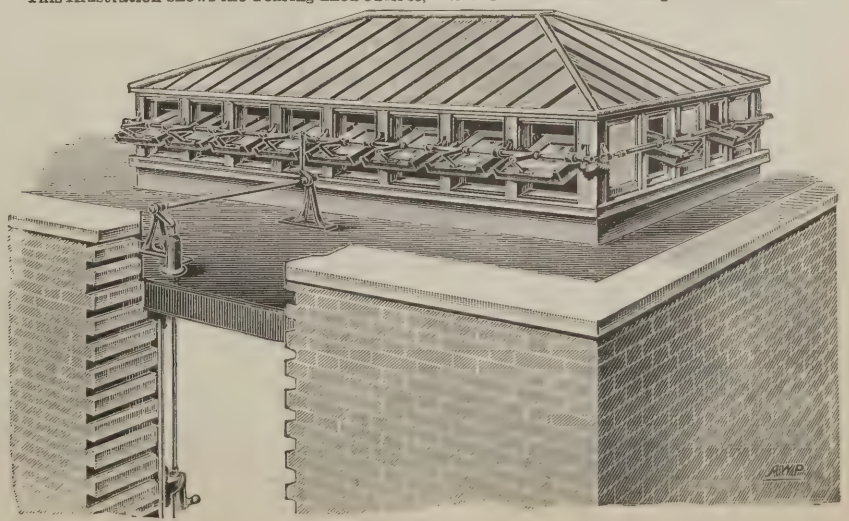
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[The dates given are those on which the application is to be sent in, and the name given is that of the person to apply to. In nearly every case the application has to be made on a special form, which can be obtained from the officials mentioned.]

January 14.

STOKE-ON-TRENT.—Temporary assistant in engineer's office, £91. A. Burton, A.M.I.C.E., town clerk.

January 15.

PETERHEAD, SCOTLAND.—Road surveyor, £200. P. Irvine, district clerk.

January 16.

NEWPORT, MON.—Clerk of works (state salary required). A. A. Newman, town clerk.

January 17.

HALIFAX CORPORATION.—Building inspector, £120. Town clerk.

LEICESTER CORPORATION.—General foreman of platelayers, 3½ guineas per week. E. G. Mawbey, engineer.

RAMSGATE CORPORATION.—Draughtsman (state salary required). Engineer, Gas and Water Works.

SALE U.D.C.—Clerk of works, £2 per week Hallewell, clerk.

January 19.

EDINBURGH, HERIOT WALL COLLEGE.—Instructor in machanical drawing, £150. David Lewis, treasurer.

HULL SCHOOL BOARD.—Architectural assistant, £100. D. I. O. Donahue, clerk.

MAIDENHEAD BOROUGH.—Assistant electrical engineer, £80. C. O. Milton, electrical engineer.

POPLAR BOROUGH.—Clerk in surveyor's department, 35s. per week. Leonard Potts, town clerk.

ROCHDALE BOROUGH.—Assistant inspector of nuisances, 30s. per week. J. Leach, town clerk.

January 20.

CROYDON TOWN COUNCIL.—Surveyor's assistant, £120. Samuel Jacobs, acting town clerk.

GIBRALTAR.—Senior electrical engineer, £300. W. W. Copland, secretary and engineer, Gibraltar.

TYNEMOUTH MUNICIPAL BOROUGH.—Borough accountant, £300, increasing to £400. Horatio A. Adamson, town clerk.

WOOLWICH BOROUGH.—Clerk of works, £4 4s. A. B. Bryceson, town clerk.

January 23.

DEVONPORT.—Waterworks manager, £250. A. R. Pilling, town clerk.

January 26.

SHEFFIELD.—Engineer (state salary required). William Terry, general manager.

January 29.

STRETFORD U.D.C.—Engineering clerk of works (state salary required). G. H. Abrahams, clerk.

January 30.

BENARES, INDIA.—Assistant resident engineer, £320, rising; waterworks inspector, £160, rising. Chairman, Municipal Board, Benares.

RANGOON PORT TRUST.—Resident engineer, Rs.700 rising to 1,000 monthly. George Buchanan, chairman, Burma.

MALAY STATES.—Six surveyors, chief draughtsman £360 each, free quarters. Private Secretary, Colonial Office.

February 2.

LONDON COUNTY COUNCIL.—Assistant in chief engineer's department, £500. G. L. Gomme, clerk.

February 15.

BOMBAY CITY.—Executive engineer, Rs.1,200 per month. M. N. Waded, municipal secretary.

The Tower of Birkenhead Town Hall is proposed to be rebuilt. Mr. Hartley, architect, has prepared a design which would make the new tower about 12ft. lower than the old one. The only point on which the Finance Committee are as yet undecided is as to the inclusion of the four figures, each 9ft. high, shown at the four corners of the first stage of the new tower, or the substitution of other simpler and less expensive ornamental work, which would mean a saving of about £200 or £300. The figures themselves would cost from £320 to £350. About seventy per cent. of the old stonework would be available for the new tower.

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Addressed postcards on which lists of tenders may be stated will be sent post free on application to the Manager, BUILDERS' JOURNAL, 9, *East Harding Street, E.C.*

Bristol.—For the erection of boundary wall and railings at the Greenbank Cemetery, for Burial Board. Mr. T. H. Yabbicomb, C.E., engineer, Queen Square, Bristol:—

Hatherley, Bristol	£1,419 0 0
James, Bristol	1,270 0 0
Bennett Brothers, Bristol	1,270 0 0
Clark, Fishponds	1,205 0 0
Free, Fishponds	1,203 0 0
Priest & Son, Bristol	1,196 0 0
Roe, Bristol	1,168 0 0
Chase, Bristol	1,161 9 10
J. Browning,* Fishponds	1,160 0 0

* Accepted.

Hull.—For the erection of thirty-four artizans' dwellings proposed to be erected in Rustenburgh Street, for the City Improvement Committee. Mr. Joseph H. Hirst, city architect:—

Amalgamated Builders, Ltd., Hull	£7,452 17 9
C. Greenwood, Hull	6,507 19 6
F. Southern, Hull	6,410 8 5
E. Good & Son, Ltd., Hull	6,324 5 2
T. Goates, Hull	6,259 0 0
Hull General Builders, Ltd.	6,168 13 0
Hill & Stephenson, Hull	6,110 5 7
F. Blackburn & Son, Hull	6,046 15 0
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J. Carr, Hull	5,956 14 10
F. Singleton, Witham	5,950 0 0
Simpson & Son, Hull	5,934 19 6
B. Ashton & Son, Saxby, near Hull	5,934 1 6
W. Barton, Thorne, near Doncaster	5,890 0 0
G. Jackson & Son, Witham	5,889 6 2
J. H. Fenwick,* Hull	5,875 14 4

* Accepted.

Irvine (Scotland).—For constructing a store reservoir on the Caae Water, and accompanying works thereabout, for the Corporation. Messrs. J. & A. Leslie & Reid, C.E., engineers, 72A George Street, Edinburgh:—

Henderson & Duncan, Edinburgh	£51,955 4 0
J. Laing, Carlisle	49,567 3 9
Blair & White, Glasgow	48,259 10 10
W. C. Harvie & Co., Broughton, Peebleshire	42,934 0 0
J. Urquhart, Ardrossan	41,530 6 7
Kirkwood, Kirr & Co., Lochwinnoch	41,388 9 7
A. Stark & Sons, Glasgow	40,615 17 5
Stirling & Kinniburg, Glasgow	38,459 13 6
J. J. Maclachlan, Irvine	38,141 14 8
J. Young, Ltd., Glasgow	36,172 3 0
T. Crawford & Son, Strathaven	34,053 18 10

Llangarren (Herefordshire).—For the erection of a vicarage, for the Rev. E. E. Cunnington. Mr. Ernest G. Davies, M.S.A., architect, Hereford:—

Davies & Co.	£1,498
W. Powell	1,490
Lewis & Co.	1,444
C. Cook	1,415

* Accepted. [All of Hereford.]

London, S.E.—For new police court and station at Bermondsey. Mr. J. Dixon Butler, architect, surveyor to the Metropolitan Police. Quantities by Messrs. Thurgood, Son & Chidgey:—

Spencer, Santo & Co.	£44,942	Lovatt	£42,000
Foster & Dicksee	43,887	G. Parker	42,000
H. J. Williams	43,487	Grover & Son	41.773
Lascelles & Co.	42,768	Cubitt & Co.	41,400
Allen & Sons	42,867	Higgs & Hill	41,244
Martin, Wells & Co.	42,703	Holloway Brothers	41,089
Clarke & Bracey	42,624	Killby & Gayford	40,933
H. & F. Higgs	42,482	Lawrence & Son	40,380
		Mowlem & Co.	39,446

London, W.—For the erection of premises for Messrs. W. Mead & Co., Ltd., at North Wharf Road, Paddington. Messrs. Thomas & Thomas, architects, 191 Edgware Road, W.:—

Gould & Brand	£1,125	Patman & Fotheringham	£1,080
Godson & Sons	1,110	Bull & Esdaile	1,075
Lawrence & Sons	1,109	Nightingale & Co.	1,075
Richards & Co.	1,089	Chessum & Son	1,038

London, W.—For the construction of a convenience at the Paddington Recreation Ground, Portsdown Road, Paddington, W., for the Paddington Borough Council. Mr. E. B. Newton, A.M.I.C.E., F.S.I., borough surveyor:—

A. C. Harnden, 72 Harrow Road	£1,715 11 10
Doulton & Co., Lambeth	1,234 0 0
G. Jennings, Ltd., Lambeth Palace Road	1,191 1 0
F. Mark, 51 Bell Street	1,179 0 0
B. Finch & Co., Lambeth	1,037 17 6
Spiers & Son,* St. John's Wood	993 0 0

* Accepted. [One tender received too late.]

Pebworth (near Stratford-on-Avon).—For the erection of new schools to accommodate 150 children, for the School Board. Messrs Harvey Brothers, architects, 30 King's Road, Evesham:—

J. G. Fincher & Co., Stratford-on-Avon	£1,195 0 0
Espeley & Co., Evesham	1,810 0 0
W. White, Hampton, Evesham	1,763 16 2
T. Vale, Stourport	1,750 0 0
Exors. of late J. Stanley,* Alcester, Redditch	1,695 2 0

* Accepted.

Stifford (Essex).—For alteration and enlargement of existing Board school and erection of new infants' school, &c., for School Board. Mr. C. M. Shiner, A.R.I.B.A., architect, 6, 7 and 8 Crutched Friars, E.C.:—

J. Brown, Grays	£7,350 0 0
Hammond & Son, Romford	7,050 0 0
W. Smith & Sons, Croydon	6,977 0 0
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E. Moss, Southend-on-Sea	6,290 18 0
Pavitt & Son, Aveley, Essex	6,225 12 8
C. Wall, Grays	6 050 0 0
H. J. Carter,* Grays	5,755 0 0

* Accepted.

Swansea.—For the erection of a new house in Richmond Road. Mr. Glendinning Moxham, architect, Swansea:—

David Jenkins	£1,820 0
Henry Billings	1,790 0
Bennett Brothers	1,780 0
J. & F. Weaver	1,763 0
John Davies*	1,745 10

* Accepted.

Southampton.—Accepted for overhead tracking and switches at cold stores, for the South Western Railway. Sir F. Bramwell and Mr. H. Graham Harris, civil engineers, Westminster:—

Lockerbie & Wilkinson, Ltd., Birmingham	£4,245 15 0

Swansea.—For the erection of new out-patients' department at the General and Eye Hospital. Mr. Glendinning Moxham, architect, Swansea:—

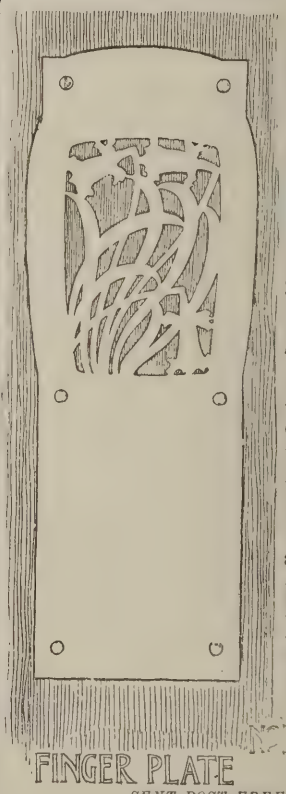
Lloyd Brothers	£1,340 4 6
Walters & John	1,307 0 0
Thomas Richards	1,304 0 0
David Jenkins	1,297 0 0
J. Marles & Son	1,277 10 0
J. & F. Weaver	1,255 0 0
Bennett Brothers	1,252 0 0
John Davies	1,250 0 0
Griffith Davies	1,243 10 0
Henry Billings*	1,220 10 0

* Accepted.

West Brighton.—Accepted for steel-construction work in the extension of the pier pavilion. Mr. M. Noel Ridley, civil engineer, Dartmouth Street, Westminster:—

Lockerbie & Wilkinson, Ltd., Birmingham	£593 12 6

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NOTICE:—*The offices of this journal have been temporarily removed from Effingham House, Arundel Street, to 9, East Harding Street, E.C. (next to Messrs. Eyre & Spottiswoode, the King's Printers), to which new address all communications should be sent.*

An Architectural Causerie.

A Developed Georgian. THE architecture of the Georgian period has been virulently abused by many writers, and a great many harsh things have been said of it—its dreariness, lack of imagination, monotony, and so forth; but for all that it is much preferable to the riotous mixture which is characteristic of most modern work. In educational matters it is becoming an accepted axiom that the foremost attention must be given to the average intellect, leaving genius to work its way as best it can. And the same is equally applicable to architecture. It is not the student of exceptional talent but the average—maybe the humdrum—student that needs most attention in an architectural school; for these average talents make up the bulk of the profession, and it is they who will be chiefly responsible for the architecture of their generation. The application of such a tenet to Georgian work is apparent. It may be said that the A B C of that work is comparatively easily learned, and each architect starts with it as his stock-in-trade; men of greater ability will develop it as they desire; but the average practitioner, unable to produce anything fresh worth looking at, is at least not likely to offend the eye with his designs. Maybe this is a low view to take of architecture, but it is one likely to do more good than the indiscriminate preaching of the doctrine to be original and new; a doctrine which, in its extreme, has resulted in buildings being erected without any regard to their fitness or propriety, and in its middle paths leads to those tasteless muddles which so many architects call designs. The Georgian work had good proportion, was quiet and weathered well. In following its models we need not copy them lifelessly or perpetuate their faults; rather they may be adapted to our own needs, developed on modern lines, and their dignity made more complete by greater variety, more vigour and added refinement. The English Renaissance is a treasure which we should cherish and use.

Paris Building Regulations. THE building regulations of Paris are very little known in this country, and it is therefore interesting to briefly note the new regulations which have just been issued. The height of buildings is fixed in this manner:—If the road is less than 39ft. wide, the height of the building must not exceed the width of the street by more than 19ft. 6in. On a roadway 39ft. wide the house may therefore be 59ft. high, and for every additional metre in the width of the road a quarter of a metre (about 10in.) may be added to the height of the house until the limit of 20 metres (nearly 60ft.) to the eaves is reached; but no building may exceed that. In all dwellings, whether situated on a public or private road or in a courtyard, the height of the ceiling of the ground-floor apartment, and also that of the entresol, is not to be less than 9ft. 2in. Projections—bases of columns, balconies, corbels, bay windows, &c.—are subject to certain general regulations, which may be modified in special cases. Thus, if a roadway is 52ft. or more wide, the regulation width of the balconies may be increased by one-fourth. A new and useful clause in the decree provides that any shutter or blind placed not more than 10ft. above the pavement must either be within the body of the wall or must not open outwards. There are also minute regulations concerning verandas, awnings, sun-blinds, outside lamps, cornices and signs.



MAIN ENTRANCE TO THE STATE LIBRARY AT AARHUUS, DENMARK.
H. KAMPMANN ARCHITECT.

A State Library. THE State library at Aarhuus, Denmark, which we illustrate this week is a very interesting example of the most moderate of the "new" architecture now so popular on the Continent. Though we may not approve all its details, the general effect of the doorway reproduced on this page is good: and the same may be said of the interior of the building (see centre plate).

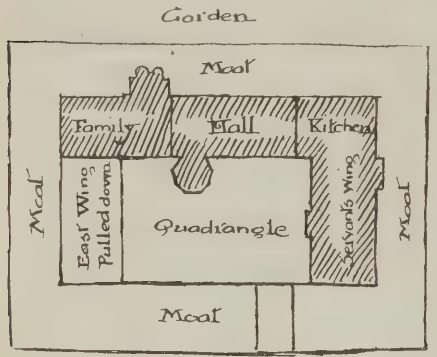
ORDSALL HALL.

By W. EATON, A.R.I.B.A.

OF the old buildings remaining in Manchester and Salford there are perhaps none more interesting than Ordsall Hall, originally called Hordeshall, which, if any credence is to be placed in the writings of Harrison Ainsworth, was the place where Guy Fawkes conceived his plot. Although portions of it have at times been allowed to fall into ruin, and alterations have been effected, yet at the present time much remains in a good state of preservation which is of great interest to the architect and antiquary.

The Hall is situated at the end of Ordsall Lane, not far from the river, and was the ancient seat of the Radcliffes, a family of great importance, as it is related that Sir John Radcliffe accompanied Edward the Third to the wars in France and was attended by an expensive retinue of knights and esquires. The buildings, which were erected some time between 1600 and 1610, must have have been of this shape —┌┐— but the easterly wing, which is now missing, is supposed to have contained the chapel, so that the buildings at present are L-shaped in plan.

The hall itself is a lofty apartment, and is one of the finest in Lancashire and Cheshire—counties which can boast of so many fine half-timbered structures. As in all old halls, it contains a raised daïs for the lord and master, and the usual screens at the buttery end, whilst over the projecting bay window adjoining the daïs is the minstrels' gallery, now approached by a modern staircase, the original staircase (if there was one) being missing. It is thought by some that access to the gallery was obtained by means of a ladder, but this is doubtful. These screens (which are found in most old halls) are lofty and of bold detail, and were no doubt constructed to keep out the draughts occasioned



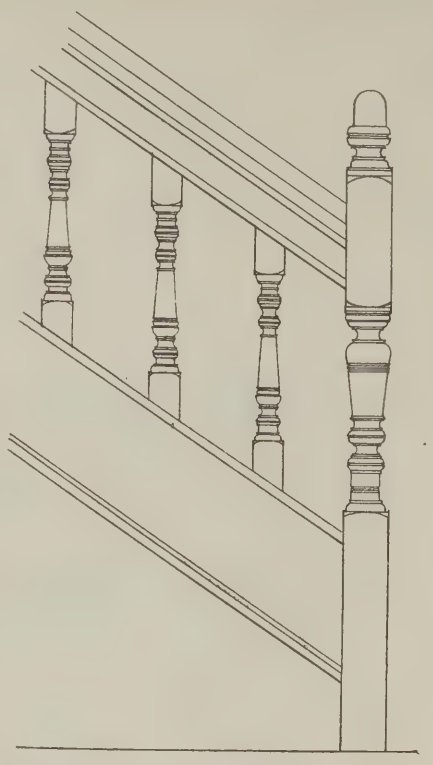
SKETCH PLAN OF ORDSALL HALL AS IT ORIGINALLY EXISTED

by the opening of the doors which gave access from the quadrangle to the garden on the south side.

The hall is of fine proportions, and measures 42ft. long by 25ft. wide, its height being 21ft. from floor-line to wall-plate and 33ft. to the ridge. The roof is open-timbered, and the dark oak framing, with the purlins and quatrefoils, show up in bold relief against the plaster filling.

Adjoining the hall is the smaller hall or Star-chamber, as it is sometimes called, which originally contained a quaint double bay with a doorway in the centre, giving access from the chamber to the garden. This window, as shown by the sketch on p. 379, was out of the perpendicular, leaning considerably to the left, and, not being considered safe, was pulled down during the alterations of 1898, and not rebuilt

The star-chamber has a beautiful plaster ceiling, and is oak-panelled all round. It contains an enormous fireplace. Close to the star-chamber is a staircase with beautiful carved newel and balusters.



NEWEL POST AND BALUSTERS TO STAIRCASE ADJOINING KITCHEN.

The north elevation of the buildings is very dignified in appearance, and there is a strength and solidity about the massive oak timbers and framing which is in striking contrast to most of the so-called half-timbered work of the present day.

A barn with oak columns and timber framing formerly existed in the courtyard, but within the last dozen years or so it has been pulled down. This barn is supposed to have been built with the remains of the timber removed from the site of the Manchester Cathedral, where stood a timber church up to the beginning of the sixteenth century.

The Hall, which belongs to Lord Egerton of Tatton, is now used for the purposes of a club, and was altered and restored in 1898 by Mr. Alfred Darbyshire, V.-P. R.I.B.A. At the same time a church designed to harmonize with the old Hall was built where the eastern wing of the Hall once stood, and which no doubt contained the domestic chapel. Previous to these alterations the exterior of the Hall was covered with lath and plaster, the oak posts having served as studs to which the laths were nailed; but why the beautiful and massive oak timbers were ever covered up in this manner is a mystery.

Ordsall Hall is admirably described in Harrison Ainsworth's "Guy Fawkes," and although the book contains much which is doubtful it gives the reader a very good idea of what the Hall was like in former days, before it was surrounded by small houses and cotton mills. The Hall is also fully described and illustrated in Mr. H. Taylor's "Old Halls of Lancashire and Cheshire," and in his "Notes on a Sketching Tour"—the latter is an admirable little publication for the architectural student, and from it several particulars have been gleaned for this short article.

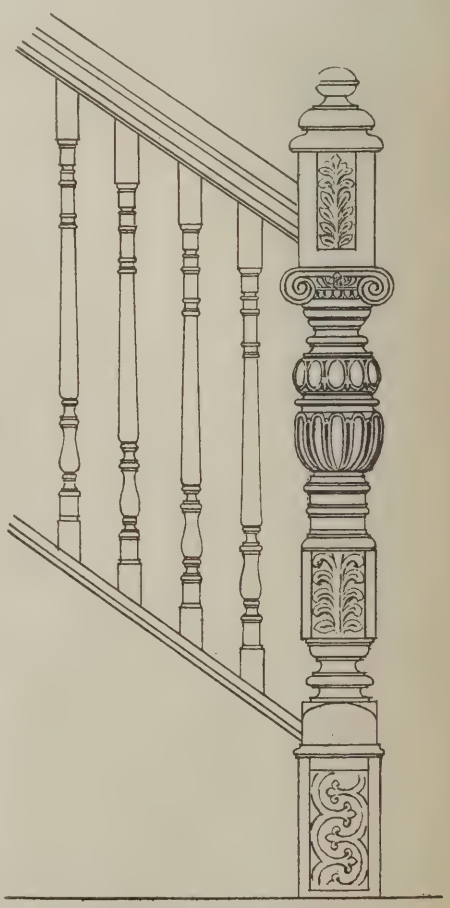
A Stained-glass Memorial Window has been placed in the chancel of Alderton Church, Northants. The subject is a figure of "Faith." The window has been designed and executed under the direction of Mr. J. Silvester Blunt by Messrs. E. J. Prest & Co., of Clarence House, Haverstock Hill, N.W.

ARTS AND CRAFTS EXHIBITION.

THE first sight of so varied a collection of objects as that composing the seventh exhibition of the Arts and Crafts Society, now open at the New Gallery, is somewhat bewildering, and the visitor requires a short time to gain his balance before gauging the success of the various classes of exhibits, which are scattered here and there through the rooms as much as may be in the manner in which the objects would be in the living-rooms of a house.

In the north gallery an attempt has been made to keep the exhibits of certain large exhibitors together by the erection of screens dividing off recesses along the walls, within which they are grouped. This is a new feature and a commendable one. The successes of the exhibition are for the most part rather in the direction of colour than of form, and one would like to draw attention especially to the many objects decorated with enamels of lovely colours, though these are many of them objects of personal adornment, and one ought to begin with architecture and its kindred arts. Some of Mr. Fisher's work is especially beautiful in this respect, and he also exhibits some ecclesiastical goldsmithery adorned with very fine colour effects. A mirror in bronze, silvered, a figure of Venus supporting a shell and standing upon a delicate base made by him and his assistants (who are not named, by-the-bye), is one of the most beautiful things in the gallery, and suggests to one that if he would use rather more freedom in the design of the surroundings of his enamels and rather less pictorial intention in the enamels themselves the value of the whole would be even greater.

There is a most interesting series of photographs in the gallery, prepared for the Turin exhibition, of the work of architects who prepared the way for the Arts and Crafts



NEWEL POST AND BALUSTERS TO STAIRCASE ADJOINING STAR-CHAMBER.

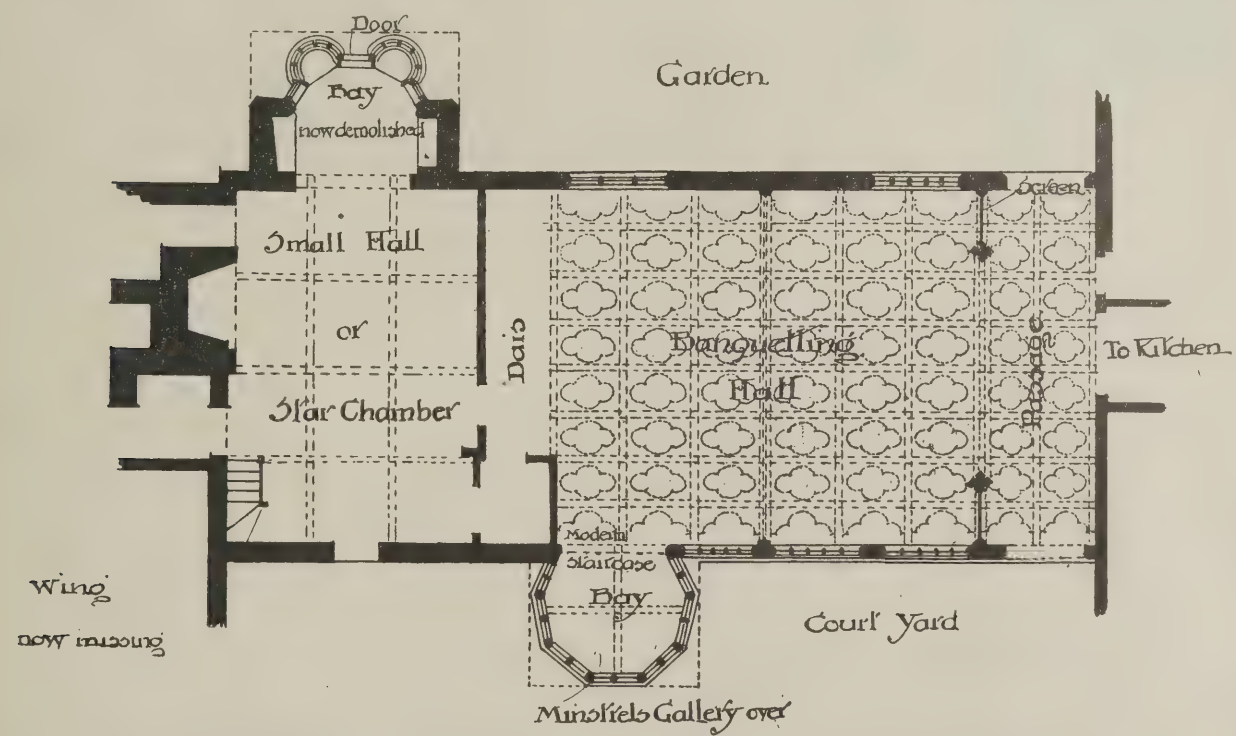
Exhibition Society—J. F. Bentley, Philip Webb, Norman Shaw, Eden Nesfield, J. D. Sedding, W. Butterfield, Pugin and W. Burges; and there are also other photographs of the works of men of less mark, and a model of the scheme for Vauxhall Bridge propounded by Mr. H. H. Statham. Although the piers of this are fairly satisfactory, and the deep voussoirs of the arch are not without nobility, the crowning parapet is poor and out of scale. Other models are Mr. C. R. Ashbee's "Porthgwidden," a large house with a strong reminiscence of an American piazza; Mr. Harrison Townsend's "Proposed Pulpit in Bristol Cathedral," which one can scarcely imagine harmonizing with its surroundings, and an inoffensive boathouse which looks quite pretty with its red roof and white walls.

The numerous cartoons for stained glass attest the success of the artists in capturing commissions from the firms who make a speciality of this kind of manufacture. Some of them show charming and delightful fancy, but, with very few exceptions, they would be difficult to execute and disappointing when executed, for the glass painter would have much more opportunity for "interpretation" than such a man as the late J. F. Bentley, for instance, would consider wise. Some of them are coloured—with the intention of explaining the intended effect to visitors to the exhibition, one may suppose, for this makes difficulty almost impossibility to the executant. A little roundel by Mr. Anning Bell is well designed, and would work well if it had not been coloured; and Mr. Louis Davis's cartoons are charming, though the effect is sometimes impossible, leads being left out in inconvenient places. Mr. Whall's records of the Gloucester windows are very interesting. The struggle to preserve the suggestion of shafting and canopy which in such a building was essential, by means of a decorative treatment of buds and flowers, and the associated effort of many workers co-operating to one end (many of whom have distinct talent for both drawing from nature and afterwards adapting their studies to decorative use) gives one a glimpse of the possibility of re-establishing a sane division of labour. One regrets that the figures are not all that could be wished. Mr. Holiday shows some imposing schemes for windows executed for churches in America, and there are other good sketches for glass, as well as much which is mediocre. Mr. Heywood Sumner shows a sketch for the interesting sgraffito for St. Agatha's, Landport; and Mr. Holiday exhibits several examples of his relief enamel, one of which, a Crucifixion, has a background of *opus sectile*. It was more pleasing when entirely in enamel.

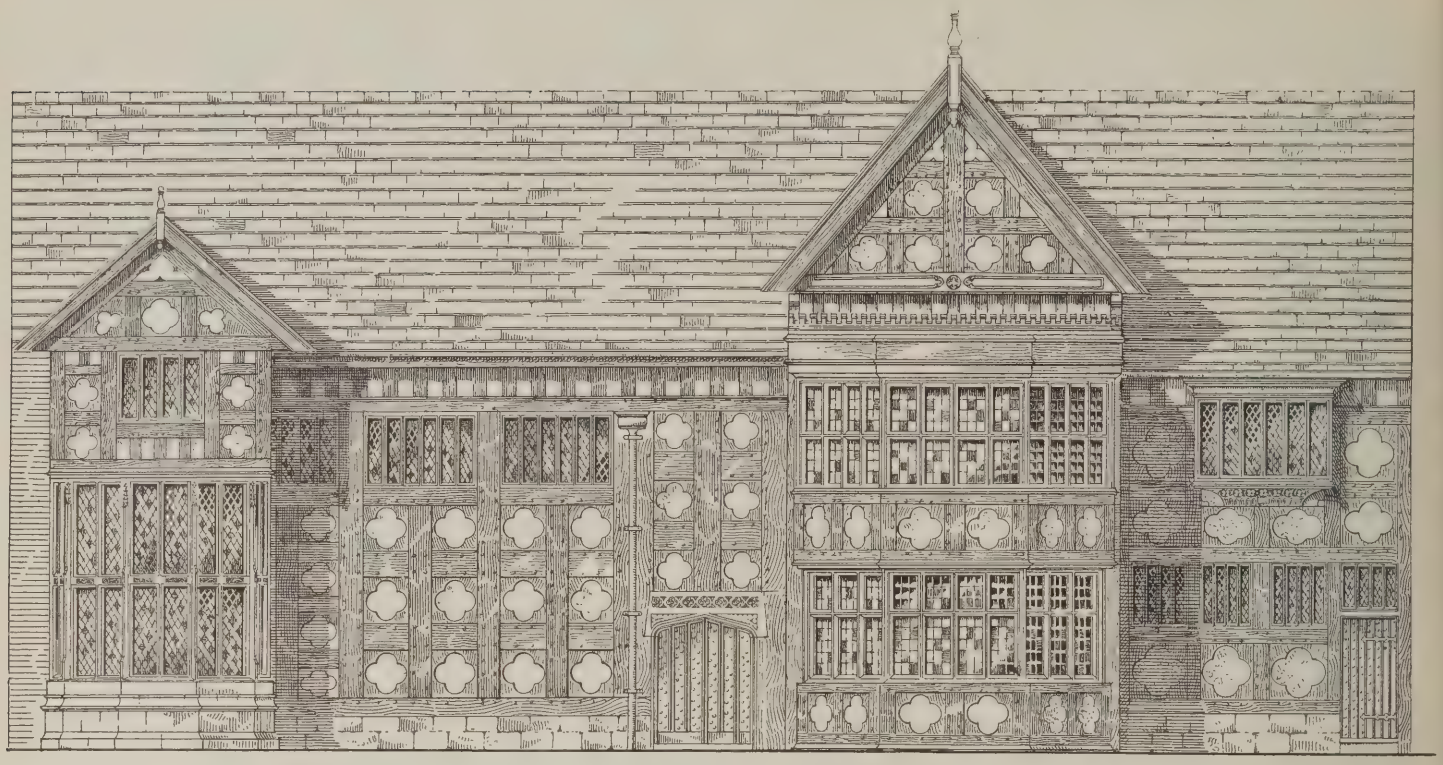
Mr. Wilson's pulpit, with the well-carved zigzag band of grape vine surrounding it, though original in conception, requires more consideration in the matter of mouldings to make it quite satisfactory. A grand piano near, by Mr. C. R. Ashbee, is massive and even clumsy in its external form and metalwork, but the interior, of white wood with painted decoration in delicate greys and lilacs, is very charming: the only exception one is inclined to take being that it is as great a mistake to spread one subject over a number of panels, so that the framing appears to overlie the design, as to spread a pictorial subject over a window, disregarding the mullions which divide the lights. Mr. Aumonier's frame containing examples of the processes of inlay and marquetry, in the gallery, should not be overlooked by craftsmen and designers interested in the matter. Much of the furniture is good in design without being striking, the few exhibits which stand out from the rest doing so rather by reason of eccentricity than special excellence. There is considerable and generally successful use of quiet simple inlays; and in this section also the treatment of material from the point of view of colour is often more successful than the design. Mr. Ambrose Heal's silver-grey bedroom suite, for instance, is very pleasant in colour, but the combination of architectural forms in the looking glass of the toilet table with the irregular shapings of the rest of that object is not successful. The only really original feature in this class (apart from the painful attempts to produce a new form of chair) is the treatment of the octagonal table legs in No. 362*bb* with the honeycomb forms at top and bottom, adapted apparently from cut glass. Mr. Spooner's oak dresser, Mr. Walton's walnut sideboard (which, however, looks rather as if it had not been intended to be so high originally), Mr. Barnsley's mirror inlaid with pearl-shell, Mr. Pyment's secretaire in Spanish mahogany, in the north gallery, and Mr. Spooner's dark olive-green dresser, decorated with groups of whitish spots, in the south gallery, may be noted as among the most pleasing examples.

Mr. Reynolds's two mantelpieces in beaten copper do not quite hit the mark. The one supported on wrought-iron stanchions is the better of the two, though the support appears insufficient to satisfy the average eye; and the insistence upon the irregularity of the pieces of copper of which it is made, by pronouncing the rivets, savours of affectation. The ornament along the front of the shelf is excellent and suited to its place, not like Mr. Gimson's plaster frieze in the north gallery, which is an upright design turned on its side. Much of the metalwork is too spidery for a pleasant effect, though no doubt the design may be said to be suitable to the material. Mr. Walter Cave's hanging lamp in the central hall, with its pierced panels of ships and ornament, &c., combining cast and chased with beaten and pierced work very pleasantly, is noticeable by its difference from the usually accepted type. Good metalwork is also shown by Mr. Rathbone and Mr. Longden. The very graceful little group by Miss E. M. Moore for an electric lamp errs by reason of unsuitability for its purpose. The lamp seems to be an afterthought and more than the figures can manage.

Mr. Wilson's designs for modelled plaster panels are much too pictorial, and one sees in the one executed, shown in the central hall, how entirely different the necessary treatment makes the design, many of the lines prominent in the drawing almost disappearing in the relief. Mr. Gillick's frieze in the west gallery may be compared with it—a work in which the movement of the figures is graceful and living: the grouping of line and mass is excellent, and the masses grow out of the ground planes in a manner which emphasizes the salient parts of the design. Other plasterwork is shown of various quality, and a good deal of coloured gesso, much of which must be looked upon as a



PLAN OF STAR-CHAMBER AND BANQUETING HALL AT ORDSALL HALL (PREVIOUS TO ALTERATIONS IN 1898).



NORTH ELEVATION

Scale 10 5 0 10 20 30 Feet

ORDSALL HALL, LANCASHIRE. MEASURED AND DRAWN BY W. EATON, A.R.I.B.A.

warning. It was cruel to place Mr. Anning Bell's "Mermaid" (one of his successes) next to No. 148—the contrast is too striking. Mr. Conrad Dressler's roundel recalls Della Robbia, but the very French feeling in the pretty head is scarcely in harmony with the surrounding frame.

It is interesting to see Mr. Walter Crane making working drawings upon squared paper, a most tedious business but necessary at some stage of the designing for textiles. The iris border, No. 346, for a Brussels carpet is the most successful design. His little pavilion contains several good designs for printed stuffs, &c., the best being that entitled "Bon Voyage." The maces of which he shows models and photographs are a little weak in general outline. Mr. Horace Warner and Mr. Vigers carry off the honours for flat pattern design, though Mr. Sumner, Mr. Butterfield, Mr. Carpenter and others show workmanlike drawings. Mr. Stephen Webb's graceful figure frieze in thin copper must not be overlooked, nor Mr. G. Rigby's stencils friezes.

The embroideries are some of them very beautifully worked, the less ambitious being more successful than those which aim at pictorial effect: Mrs. Crane's heraldic portière, for instance, telling much better than Mrs. Traquair's large and ambitious panels. In the west gallery are several pieces of painting called decorative, and designs for the same which entirely miss the mark, being neither carefully considered in silhouette nor balanced in colour and composition. The painter of easel pictures has been trained generally in the wrong manner to produce successful decoration, and these attempts are far too pictorial. Even Mr. Louis Davis's doors for the reredos of the chapel of the Universities Mission are confused in effect, the framing of the panels and the subjects in them being only differentiated by the different scale of the figures; but he, of course, stands on quite a different plane.

Among the black-and-white work Mr. Strange's woodcuts in two tints are the most striking things, though one feels sometimes that his lines are scarcely expressive enough for so abstract a treatment. Mr. Legros's influence is very evident in the design. The galleries contain many very interesting exhibits, and the extravagances which marked the last exhibition are much fewer in number.

S. S. G.

LONDON BUILDING ACT AMENDMENT.

Objections by Chamber of Commerce and City Corporation.

A JOINT conference between the Fire Protection Committee of the manufacturers' section of the London Chamber of Commerce and the retailers' sub-section was recently held to consider the London Building Act Amendment Bill, to be introduced by the London County Council in the ensuing session; and to decide as to what answer should be made to a request by the Council that the Chamber would furnish its observations as early as possible on the Bill. The following resolutions were unanimously adopted:—

"That the Fire Protection Committee of the manufacturers' section, in conjunction with members of the retailers' sub-section, having considered the London Building Act Amendment Bill as promoted by the London County Council, is of opinion that the changes which are contemplated will seriously affect owners and occupiers of business premises, and that the objections expressed by members should be formulated and conveyed to the County Council.

"That this meeting, in view of the far-reaching proposals contained in the Bill, recommends that the manufacturers' section be authorized by the Council to convene a joint meeting of other sections or interests likely to be affected thereby, with power to make joint or separate representations to the London County Council as may be found desirable."

In the course of the discussion it was pointed out that the Bill would affect all classes of business premises, especially as the administration of the Bill would be virtually left to the discretion of the officials of the London County Council and district surveyors. While it was felt that reasonable precautions, in case of fire, should be taken for the public safety, the opinion was generally expressed that the machinery of the Bill was far too drastic, having regard to the actual risk of life in business premises, as shown by statistics over a long period of years. A meeting of the retailers' sub-section was subsequently held, and the action taken in regard to the Bill was approved.

At last Thursday's meeting of the Court of Common Council a letter was read from the London County Council enclosing a copy of a Bill for the amendment of the Building Act, and asking for any observations which the Corporation might wish to make with regard

to it. A resolution was submitted from the Ward of Cripplegate Without urging that the City should be excluded from the Bill or that it should be strongly opposed in its present form.—Mr. Deputy Baddeley moved that the Bill should be referred for consideration to the Streets Committee, to take such steps as they might deem necessary in the interests of the Corporation and the ratepayers. The Bill was a most drastic measure, and, under the cloak of increasing the facilities for escape in the case of fire, the upper part of every business house in the Metropolis would virtually have to be reconstructed at enormous expense. Under the existing Act his own firm had recently spent £2,000 in complying with vexatious demands of the County Council, but in the future the whole of the City houses would have to undergo criticism in regard to their means of escape. The result would be to depreciate the ratable value of the City and to drive business houses to places outside the Metropolitan area, where the Act did not apply. The matter was quite the most serious and far-reaching which the ratepayers had had to face for some time. Mr. Hollington, seconding the motion, said the Bill would not only affect new structure but was made retrospective, so that every building above a certain height would be affected by it. Residential flats also came within its scope.—Mr. A. C. Morton said there were facilities of appeal from the demands of the London County Council if these were excessive. He believed the matter might be arranged if, in regard to the City of London, the Corporation were made the controlling authority instead of the London County Council. He did not imagine there would be any opposition by the Council to that suggestion if it were put forward as the wishes of the City.—Mr. Deputy Baddeley's motion was then carried unanimously.

BUILDERS AND THE "FAIR CONTRACTS" CLAUSE.

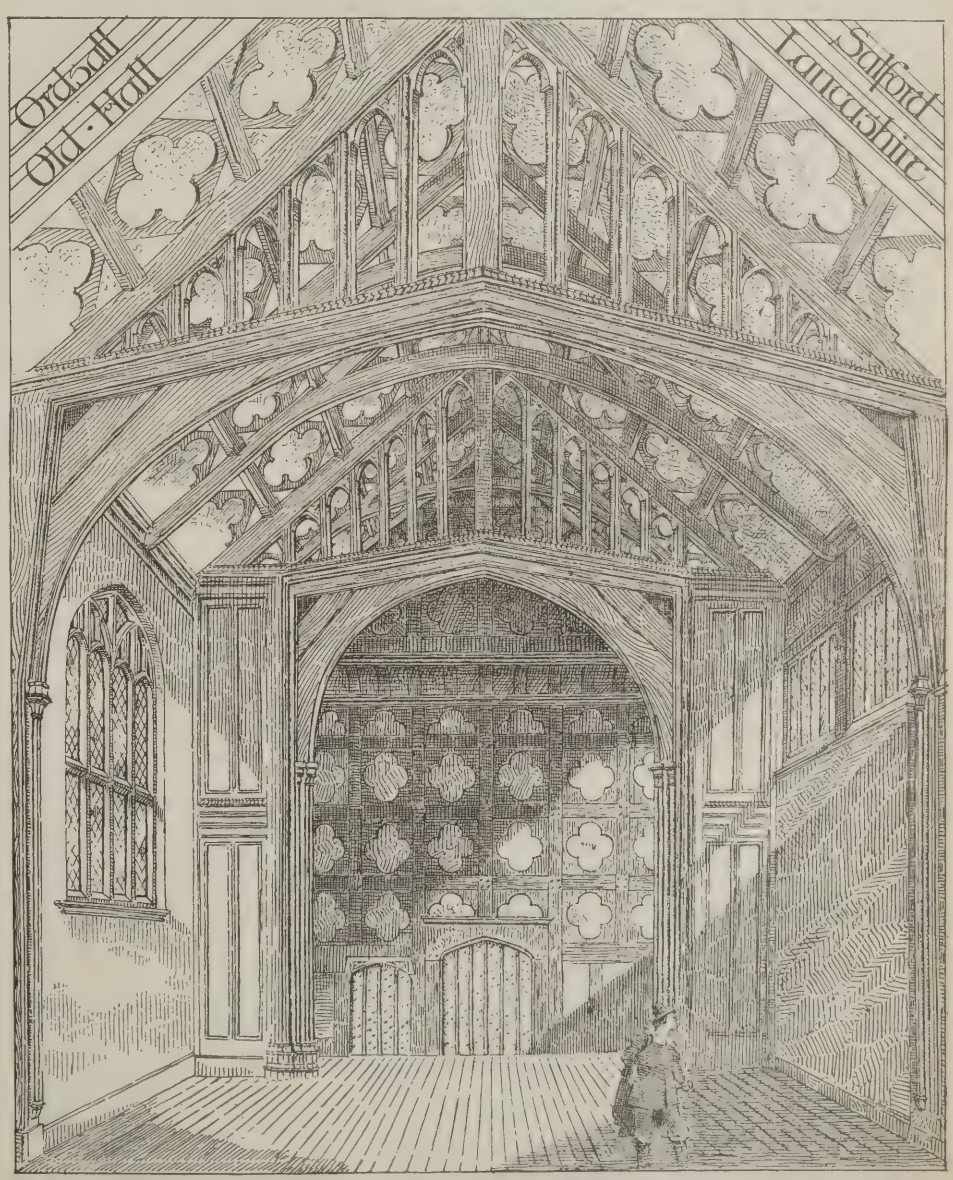
THE Manchester Watch Committee last week received correspondence which has been addressed by the Manchester and Salford Master-Builders' Association to the town clerk with respect to certain contracts which are being left for the foundations of the new police and fire station in London Road. Mr. J. Tomlisson, the secretary of the society named, writing from the offices of the organization in Cromwell Buildings, Blackfriars Street, Manchester, on December 23rd, said that the members of the Association are of opinion that the new conditions introduced into the contract would have wider and more far-reaching effects than the Corporation either intended or anticipated. They regretted that they could not tender for any work under the proposed conditions, but would be pleased to confer with the Watch Committee or its officials. Writing again on the 6th inst., under instructions, the secretary traversed the various details of the fair-contracts clause. The members of the Association, he said, object to the demand of the Corporation that the contractors "must pay the standard rate of wages to the whole of their workpeople, and observe the hours of labour recognized by the local organised bodies of workers in the various trades affected in the district where such work is being executed." By this clause, the letter urges, a contractor having a job in Manchester for the Corporation would be required to pay the wages recognised by the Manchester trade unionists to the whole of his workpeople wherever they might be employed, and whilst a Manchester employer could be required to pay Manchester wages to the men whom he employs in other towns where wages are much lower, an employer, say, at Stockport, Bury, or Preston, should be required to pay his local staff at the Manchester rate if he had a Manchester Corporation contract, thereby handicapping employers who are working for the Manchester Corporation.

In the second place, it is objected that the words "organised body of workers" place it in the power of any organised trade society to fix their own rate of wages and hours of labour, and that if a contractor has signed the clause he could be forced by the Corporation to observe such rates of wages and hours of labour, or run the risk of having his contract cancelled. Thus the employer would have no voice in fixing wages and hours, as particular agreements with the operatives in the building trades cannot be enforced by law, and there could be no resisting the men's demands by strikes or lock-outs, as this would practically mean giving up the contract.

The letter went on to speak of the number of old men who are not able to do a full day's work, and who are, by recognised custom, paid lower than the standard wage. Under the clause the Association alleges that these men could be no longer employed except under risk of a cancelled contract. Further, the master-builders object to the demand that the principal contractor should be responsible for all work executed by himself, not, as they say, as it applies to responsibility for quality of work, but in respect to its application under the first part of the clause previously objected to. Also, they object to the onus of proof being thrown upon the contractor in case of any vexatious complaints made by the labour delegates or other irresponsible persons. Although they might find no difficulty in showing compliance with the conditions so far as their own workpeople were concerned, probably in the case of sub-contractors and others the difficulty would be so great that they could not pledge themselves to undertake the responsibility

The master-builders also object to the City Council having a voice in approving of the sub-contractors. They contend that the contractor is best fitted to decide as to who shall be his sub-contractors, and in support of their position it is urged that neither the Government nor railway companies seek to impose such conditions upon contractors. Finally, the Association are opposed altogether to the very drastic penalty which the Corporation asks power to enforce, perhaps for what might be a trivial offence.

After hearing the foregoing letters read the Watch Committee decided that as the situation had been created by the City Council in adopting the fair-contracts clause, the correspondence should be laid before the Council at its next meeting, with a request for direction upon it.



INTERIOR OF THE BANQUETING HALL, LOOKING TOWARDS SCREENS.

R.I.B.A.

Award of Prizes and Studentships.

A MEETING of the Royal Institute of British Architects was held at 9, Conduit Street, W., on Monday evening, the chair being occupied by the president, Mr. Aston Webb, A.R.A. Messrs. T. E. Eccles (Liverpool) and W C. Ralph (Wigan) were elected Fellows, and Messrs. A. L. Holder, H. Moger and J. M. Ross—all of London—were elected Associates. The deed of award of prizes and studentships for 1902-3 was then announced as follows:—

Institute Silver Medal and 25 Guineas for a comparative review of the various past and present systems of architectural training at home and abroad. The Council were unable to award this prize, but granted a certificate of honourable mention to Mr. A. T. Griffith. (Three essays submitted.)

Institute Silver Medal and 10 Guineas for measured drawings of ancient buildings—Mr. Andrew Rollo, of Glasgow (drawings of Craigievar Castle, Aberdeenshire). Three sets of strainers were received.

The Soane Medallion and £100 for a design for a town church—Mr. E. F. Reynolds, of Birmingham. A medal of merit each to Mr. F. C. Mears and Mr. Wantner Smith (London). (Twenty-one designs submitted.)

The Owen Jones Studentship (certificate and £100 for travel and the study of colour)—Mr Percy E. Nobbs, of London. A medal of merit and ten guineas to Mr. L. R. Guthrie. (Three sets of drawings submitted.)

The Pugin Studentship (silver medal and £40 for travel in the United Kingdom)—Mr. J. Harold Gibbons, of Manchester. A medal of merit and ten guineas to Mr. A. Muir, of Edinburgh. (Eight sets of drawings submitted.)

The Godwin Bursary (silver medal and £65 for travel outside the United Kingdom)—Mr. A. Dunbar Smith. (Four sets of drawings submitted.)

The Tite Prize (certificate and £30 for travel in Italy) for a design for a pavilion in a public garden—Mr. David Smith, of London. (Fourteen designs submitted.)

The Cates Prize of £40—Mr. A. H. Verstage, of London. (Two competitors.)

The Grissell Gold Medal and 10 Guineas for the design of a stone dome over a porte-cochère to a large public hall—Mr. J. B. Fulton, of London. (Eleven designs submitted.)

The Ashpitel Prize to Mr. W. Greenwood, of Blackburn.

The drawings are on exhibition at the Alpine Club (entrance in Mill Street, Conduit Street, W.) up to and including January 31st, from 10 to 8. A criticism of them by Mr. Millard will be delivered at the Institute meeting to be held on February 2nd, when the prizes will also be presented and the Royal Gold Medallist for 1903 nominated.

The hon. secretary announced with regret the decease of Mr. W. Wimble, Mr. J. F. Wadmore and Mr. A. C. Brigg.

Professor H. E. Armstrong, F.R.S., then read a paper on

"Science Workshops for Schools and Colleges,"

of which the following is an abstract:—

The importance of experimental studies carried on with the object of affording training in scientific method, as a necessary part of the ordinary course in schools generally, whatever their grade, was already so widely recognised that ere long every school would need its workshops as well as its classrooms; it was therefore desirable that the general character of the requirements should be understood, in order that buildings may be properly designed to accommodate all necessary fittings and appurtenances — and more particularly to afford the necessary working space.

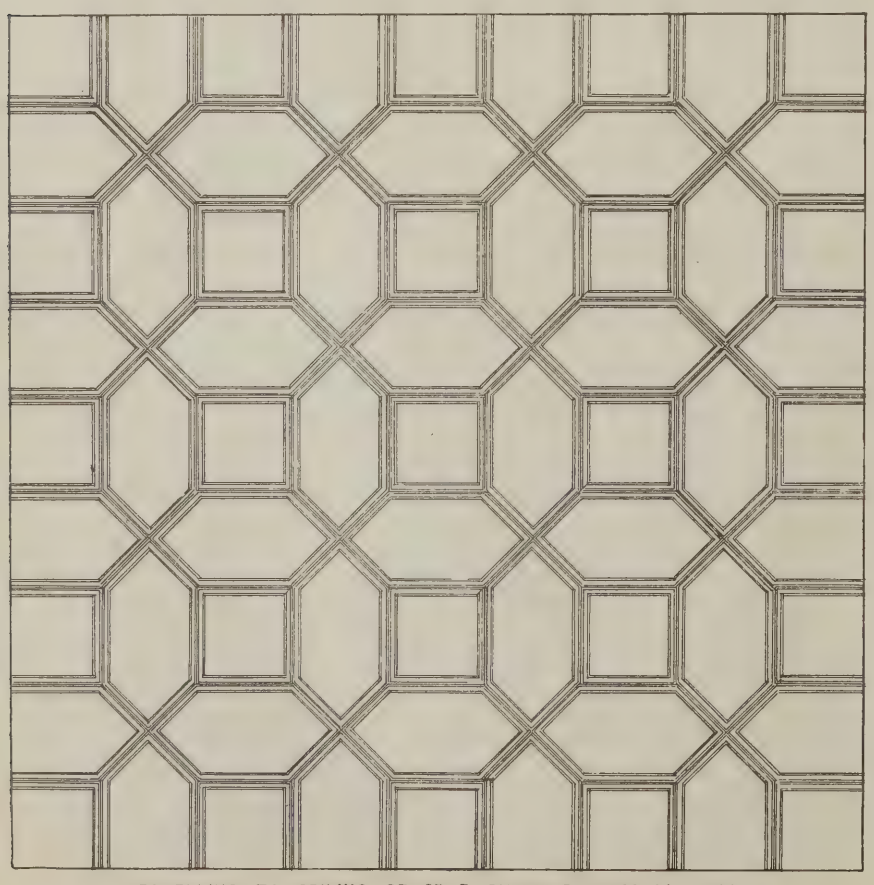
Professor Armstrong illustrated his arguments largely by reference to the new buildings at Horsham for Christ's Hospital School, erected to accommodate 800 boys, from the designs of the president and Mr. Ingress Bell. When the position and size of the science block with reference to the other school buildings was noted, it would be obvious that extraordinary importance would be attached to experimental studies in the school. The science block occupied practically one side of a quadrangle, the opposite side of which was occupied by the chapel, the classrooms and school hall filling the third, the dining-hall the fourth side. The floor area of the ordinary classrooms was 15,482 sq. ft.; that of the rooms in the science block was 10,326 sq. ft.

But the provision which would be made at Horsham for work such as he was contemplating would not be confined to the science block. At no distant date, he trusted, there would be distinct workshops for manual training in wood and metal; and the engineering appliances generally would afford opportunities for the instruction of the more advanced boys in the use of machinery. Moreover, surveying and map-making would be practised in the country round, and there would be abundant opportunity for other out of-door studies; besides school gardens, a set of experimental plots were now being laid down on the lines of those at the Rothamsted Agricultural Station, which had so world-wide a renown. Christ's Hospital School, in fact, ere many years should be a model school; its buildings marked an extraordinary advance — far greater, perhaps, than most of those connected with them realised.

In designing science workshops the architect and his technical advisers should have three S's in mind—sense, simplicity and space.

Money spent on judicious ornamentation would always be well spent in the case of a school. Far too little heed was paid to the influence which surroundings exercised on young people; if we are ever to recover the sense of artistic feeling, we must do far more to make our schools attractive. The disregard of property which seemed to be so characteristic of boys at the present day was probably a consequence of the fact that at school they were not placed under conditions which would lead them to be mindful of their surroundings. "Thinking in shape," to quote Thring at Uppingham, was one of the most powerful means of stimulating the imagination and the æsthetic faculties; it was easy to carry out the idea in these days, as magnificent photographic reproductions of the masterpieces of nature and of art were to be had at comparatively small cost; hence neither classroom nor corridor should be without its picture-rail. He would also plead for a more liberal use of colour in our schools.

The fittings at Christ's Hospital were not thought of until long after the building was designed; but, to secure the best result, the building should be designed to the fittings. The science workshops at Christ's Hospital differed in an important manner from the laboratories hitherto provided for schools—there were four main rooms in which classes were held, and to each of these was attached a number of subsidiary rooms. No lecture-room was provided—an omission of set purpose, as it was proposed to discourage didactic teaching. Full provision was made in each room for such didactic teaching as might be necessary: there was a demonstration bench, in front of which sufficient space was left free where seats could be placed; or uprights could be fixed, provided with small desk tops, where students could stand and take notes. No special balance-room was provided. A novel fitting, the balance-bench, had been introduced; this was merely a long narrow table (3ft. by 12ft by 3ft. 6in. high) covered by a glazed case for the protection of the balances. Instead of having a number of balances within separate glazed cases, one large glazed case had been provided to contain a number of separate uncased balances. The balances



PANELLING TO CEILING OF STAR CHAMBER, ORSDALL HALL.

placed in such a case are those required for all ordinary work. The more delicate balances required for advanced work were always provided with a case; and, as the sensitive working parts were of agate, there was no need to keep them in a separate room; they were conveniently placed on brackets against the wall.

A third special feature of importance was the store or stock-room attached to each of the four workshops. This was intended not only for the ordinary stores but also and especially as a room in which the apparatus for experiments left unfinished at the end of a lesson might be set aside until the next attendance.

Professor Armstrong followed with a detailed description of the more important fittings required—viz., working-benches, cupboards, sinks and drains, ventilation hoods, and various special appliances. Referring to the regulations of the science branch of the Education Department, which specify a water-tap and sink for every two students, the lecturer stated that such a provision was quite unnecessary. The class of work now advocated for schools required the use of water but seldom. Architects must harden their hearts on this point; there was no more reason why sinks should be everywhere in a laboratory than there was to have one in every room in a dwelling-house. The economy involved in localising the water-supply, sinks and drains was very great. At Horsham, in the rooms on the upper floor, all sinks were placed near to the walls, and the waste was carried down to the floor below in pipes fixed in chases in the walls. On the basement floor cross-channels were avoided as much as possible. In the lecturer's experience wooden sinks are far the best, provided that they are built up solidly without dovetailed joints, and that they are always kept partly full of water by arranging the waste so that it projects several inches (about (four) above the bottom of the sink. American white wood seems to be one of the best to use. Sides and bottom should be without joints. All surfaces should be well painted with thin coal tar before they are butted; and the whole surface inside and out should be similarly coated. The waste-pipe should either be somewhat expanded or should have a flange burnt on by means of which it may be held in position by two blocks, one of which—fixed by screws to the underside of the bottom—serves to carry bolts by means of which a second block is caused to clamp the pipe firmly. The space between the pipe and the side of the hole through which the pipe passes is filled in with pitch. The sink is wedged up against the bench top. Such sinks may be made of any size that may be desired, and no plumber is needed to fix them.

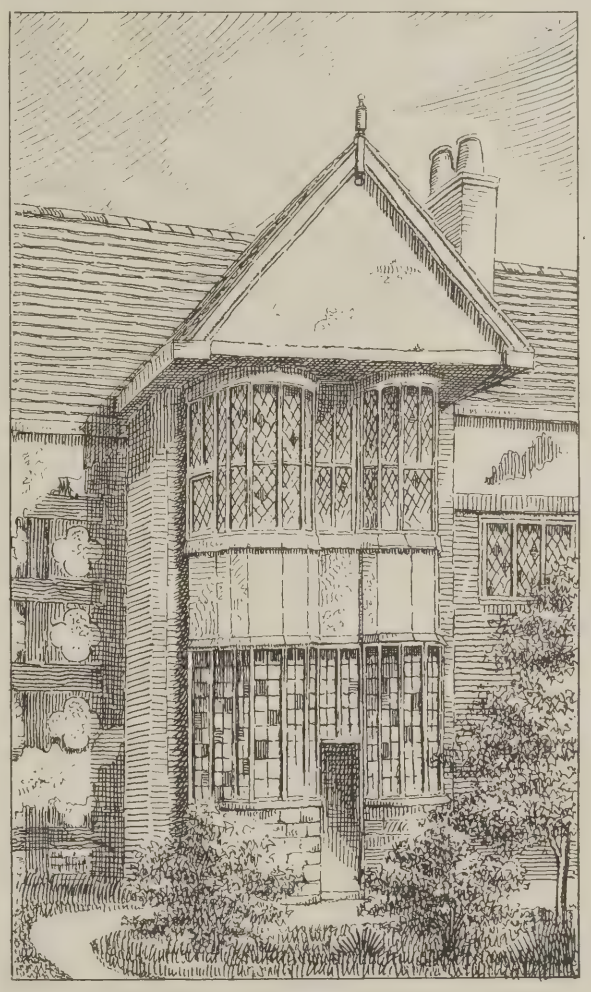
The ideal to be aimed at was to have the whole of the room, both floor and wall-space, available for the work to be done in it. Projections into the room should be avoided, and windows be inserted at least 6ft. above the floor.

Whenever possible steam or hot-water pipes for heating the room should be carried under gratings in channels in the floor. Radiators, &c., take up much space and interfere with and damage fittings in their neighbourhood.

The lecturer questioned the need of the elaborate provision hitherto made for benches. If sufficient shelving, racks, &c., be provided, and cupboards for general use where necessary, there is little need for cupboards under the benches. He favoured steady, heavy benches of the kitchen-table type. For such benches it was unnecessary to use hardwood; all difficulties of staining, disfigurement and cracks would be overcome by the use of lead-covered benches—a long experience had led the lecturer to prefer these to all others.

With reference to girls' schools, briefly touched upon by Professsor Armstrong, he advised that provision should be made, even in the case of girls, for some use of tools. The rules with regard to planning and fitting public elementary schools recently issued by the Board of Education undoubtedly tend to favour over-provision. It is not merely that much more money is spent than necessary, but a false complexion is put upon the work—it becomes drawing-room practice and not workshop practice, and when scholars go out into the world they find themselves placed under altogether strange conditions, unable to use the ordinary tools and unable either to fit into or to follow the ways of ordinary life. The outcome is most serious; some action must be taken to put the schools on a simpler footing and to bring their work into harmony with ordinary requirements. In conclusion, Professor Armstrong urged that some attempt should now be made to standardise the requirements both for elementary and secondary schools.

A discussion followed in which Sir William Abney, Mr. W. D. Caröe, Mr. John Slater, Mr. J. J. Stevenson, Miss Walter, and the president took part.



BAY TO STAR-CHAMBER, ORDSALL HALL, NOW DEMOLISHED.

Alterations to the Congregational Chapel, Lendal, York, together with a scheme of re-decoration, have been completed at a cost of £1,500. Mr. F. Raney, of York, was the architect for the work. The contractors were:—Brick, stone, carpenter and joiner, Messrs. Keswick & Sons; plumber and glazier, Mr. J. Birch; slater, Mr. Sherrey; and painter and decorator, Mr. T. Welburn (all of York). Movable partitions and furniture were supplied by the North of England School Furnishing Co., Ltd., Darlington.

AMERICA'S BIGGEST BUILDING.

THE PHILADELPHIA CITY HALL.

WITH the announcement that after thirty-one years of work the largest building in America is nearing completion comes another to the effect that the big pile is so overcrowded that its 4,500 tenants are beginning to call for the addition of another storey; and this, despite the fact that the structure, Philadelphia's City Hall, has 682 rooms, with a total floor-space of 118 acres. Mr. John M. Bunker, the superintendent of the building, is also bothered by being told continually that the twenty-two elevators cannot accommodate the thousands of persons who enter the hall daily. "What can we do?" Mr. Bunker asks. "We've put in and put in elevators until we've no place to install another. But something will have to be done soon to relieve the jam."

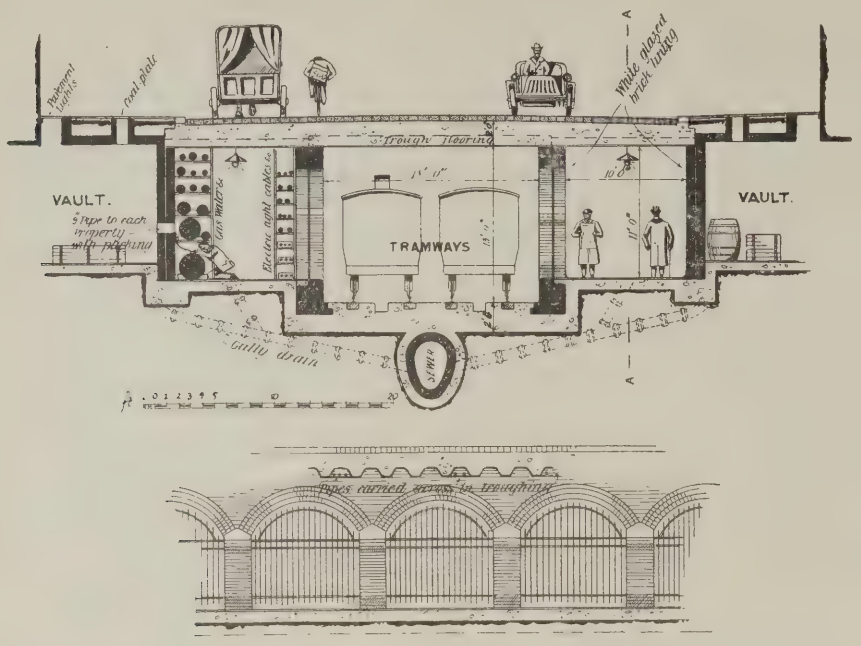
The chief queer thing to Philadelphia taxpayers is how the city hall cost £5,000,000.

A recent report, in endeavouring to explain this expenditure, reveals some interesting facts. It states that £63,500 has been paid to the architect and his assistants in salaries since 1871, when the building was begun; £70,000 for paint and painting, £1,100,000 for 1,464,000 cub. yds. of marble for marble work; £800,000 for fitting-up rooms; £270,000 for watchmen and cleaners; £147,000 for electric installation, and so on. The installation of electricity furnished an interesting incident in the hall's history. When the walls were erected electric lighting was unheard-of, so that when its installation was ordered the electricians had to chisel through the stone walls for the wires at very considerable expense, and it took them the better part of five years of steady work to wire the building. The dynamo-room is one of fifty-nine in the building's basement, which runs not only under the hall but under the area in the centre as well.

The second highest elevator in the world is in the tower of the building. It runs from the seventh floor, 138ft. above ground, to the base of the Penn statue, an upward course of 372ft. The tower also has a clock with 26ft. dials.

A peculiar thing about the tower is that in the course of a day contraction and expansion, due to the sun's rays, make it lean ¾in. out of plumb. Then, too, the tower is an insatiable and inveterate destroyer of birds. The ring of sixteen powerful arc lights that glow at the base of Penn's statue blinds the birds so that they fly against the tower, are killed, and fall to the roofs below. One of the hall's employees has a collection of over a thousand birds that were killed in this manner. The statue of William Penn that caps the tower is 37ft. high. The hat is 9ft. in diameter, the rim 23ft. in circumference, the buttons on the coat are 6in. in diameter and the coat cuffs 3ft. long.

Thirteen of the rooms occupied by the City Solicitor's Department are furnished in steel. The only things inflammable in them are the wooden tops of a few tables and a half a dozen carpets. Desks are of steel, as well as doors, window frames and thousands



PROPOSED SUBWAY UNDER THE STRAND.

of fireproof boxes for municipal documents. Four hundred and seventy-seven tons of steel were used in fitting up these rooms, and it took seventeen months to do the work.

Another room entirely of steel, except the table-tops, is the Law Association Library, where 38,000 volumes are kept.

There are nearly three miles of main corridors in the building and one and a half miles of branches.

Twenty-two persons have met death while working on the City Hall. One man recently fell from the brim of Penn's hat.

Engineering Notes.

Mr. Alfred J. Brickwell has been appointed assistant surveyor to the Great Northern Railway Co.

The Prince of Wales's Pier at Dover, which has been erected at a cost of £600,000 as a part of the new commercial harbour of 75 acres, was opened to the public for the first time on New Year's Day.

The Eskdale District Hospital, Langholm, is being warmed and ventilated by means of Shorlands' patent Manchester stoves with descending smoke flues, patent Manchester grates, exhaust roof and inlet ventilators, supplied by Messrs. E. H. Shorland & Brother, of Manchester.

The Scheme for a Mono-rail from London to Brighton is not likely to be proceeded with, owing to the opposition prepared by the Brighton Railway Co. The promoters of the City and Crystal Palace Tube Railway have also abandoned their scheme for the coming session.

German Tender accepted for Sunderland Electricity Works.—The Sunderland Town Council have accepted a tender from the Allgemeine Electrical Co., of Berlin, for important plant required for the extension of municipal electricity works. It was stated that this firm's price was £1,885 below the lowest English tender.

Ventilation at the Law Courts.—With the object of providing better ventilation in the court corridors electrical fans have now been fitted over the entrances to the four lavatories on the court floor at the Law Courts, while improved means of ventilation have been effected at the various windows of the corridors.

Messrs. A. E. Keys & Co. believe they have an important scientific discovery to lay before the public concerning ventilation. In a week or so they propose to give a demonstration, when they hope to illustrate a method of rectifying impure air so that it may be put into circulation again in an absolutely pure condition.

A New System of Ventilation.—Dr. T. Glover Lyon, of the City of London Hospital, gave an address last week at the Camera Club on "Pure Air without Draught." He said natural ventilation had been tried and found wanting, hence the necessity for mechanical ventilation. Good air must be conveyed *en masse* to effect perfect ventilation to all persons occupying a room, and no reliance must be placed upon diffusion. This was the cardinal principle of ventilation for crowded rooms. In association with Mr. James Cadett, he had formulated a system of which the special feature was the employment of large inlets and outlets placed at opposite positions of a room. By this plan the air was admitted at a low velocity, and was conveyed to and from all parts of the room. Air was forced along a conduit, and issued from one side through a tapering longitudinal slot broadest at the inlet end, fitted with baffle plates. The air was let into the room through perforated screens of varying size of mesh. Air was thus made to issue nearly evenly from all parts of the screens. The foul air was passed through extensive outlets in a similar manner into a conduit and conveyed away. The club room was fitted up with the appliance.

SUBWAYS UNDER THE STRAND.

THE above illustration shows one of the subways suggested to be constructed under the Strand by the City of Westminster (the scheme has been prepared by Mr. J. W. Bradley, C.E., chief engineer, in consultation with Mr. Walter Emden).

Access to the sewer would be by side entrances from the pipe subways; pipes, &c., to be taken across the roadway in the steel troughing; ventilating pipes to subways to be brought up under curb; access to the subway to be by manholes; side entrances from footways.

New Patents.

The following specifications will be published to-morrow and will be open to opposition until March 7th. A summary of the more important of them will be given next week. The names in italics are those of the communicators of the invention.

1902.—3,255, HIGGINBOTTOM & LENNOX, brick- or briquette-making machine. 3,543, STEWART, roof-light frames. 3,877, TAYLOR, catch for securing folding doors. 4,827, YATES, attaching a cock or stop valve to a pipe. 4,916, MERCER, valves. 11,854, HART, pivot hinges for closet seats. 18,773, REEKIE, spigot and socket joints for pipes. 21,782, JAMES, filter press. 22,349, DEMAN, pavement lights. 23,158, DREW, carpenter's vice. 23,398, REILLY, sash fastener. 24,608, HADDAN (*Welsenaar, Romeyn & Verkerk*), tiled roofs. 25,028, KEMPER & DAMHORST, water-heating apparatus.

Surveying & Sanitation.

Trees for Whitehall.—The Westminster City Council have decided to spend £229 5s. in planting twenty-seven trees in Whitehall and Parliament Street from the Horse Guards Avenue to Bridge Street on both sides of the roadway.

The Breaking-up of London Streets.—The Westminster City Council proposes to ask the Government to direct the Royal Commission about to be appointed to enquire into the congestion of the street traffic of London to receive evidence and report on the obstructions caused by the breaking-up and use of the streets by companies and others, acting under statutory powers, and also as to the advantage and practicability of requiring all mains and pipes to be placed in subways under the streets.

The Metamorphosis of King's Road, Chelsea, is proceeding apace. The pulling-down of a block of houses adjoining the Poor Law Offices has been taken in hand, and on the site thus cleared will shortly be raised the workhouse extension. The new Palace of Varieties is nearing completion, whilst on the opposite side of the way the municipal baths have been closed, preparatory to extensive alterations. The widening of a portion of the main road near Beaufort Street is now completed, as is the first instalment of several other improvements of a similar nature, including the widening of the entrance from Sloane Square.

The Strand-Holborn Street.—The Improvements Committee of the London County Council report that every effort has been made to expedite the works in connection with the Holborn-to-Strand improvement. The Council is now in possession of the whole of the property between Catherine Street and the Law Courts on the Strand frontage, besides most of the land needed for the new crescent road, and nearly all the houses have been demolished. The work of forming the new street from Holborn to the Strand and clearing the insanitary area at Clare Market is being undertaken as one scheme. The widening of Southampton Row between High Holborn and Eagle Street has been completed, and the widening of the remaining portion of that thoroughfare will be undertaken at an early date. The formation of the portion of the new street immediately south of Holborn will be undertaken in the course of two or three months. All the work connected with the widening of the Strand from Catherine Street to the Law Courts has been completed, including the new sewer and the subway for pipes, wires, &c., and the formation of the eastern portion of the new crescent has been commenced.

Correspondence.

Connections to Hot-Water Cylinder.

To the Editor of THE BUILDERS' JOURNAL.

LONDON.

SIR,—On page 334 of your issue for December 31st "Shop" (of Exeter) writes: "In preparing a drawing for a hot-water supply, with secondary flow and return, I showed the latter pipe returned to the upper part of the cylinder about 8in. from the top. I have since been requested to alter this and take it into the return pipe from cylinder to boiler. Which is the better method?"

Your expert replies that "the better method is to connect the secondary return to the primary return—that is, to make the alteration as requested."

I am aware of the fact that there are fitters who think it correct to adopt the latter method—which I have shown in Fig. 2—but I wish to point out that in no ordinary circumstances is it desirable or proper. I can assure "Shop" that all the best hot-water engineers adopt the practice of taking the secondary return pipe back to the cylinder at about one-fourth of its height from the top. The reason is simple enough, namely, to avoid drawing cold water with the hot. It should be remembered that when a tap is opened water is drawn both ways, as shown by the arrows in the sketches; and in the

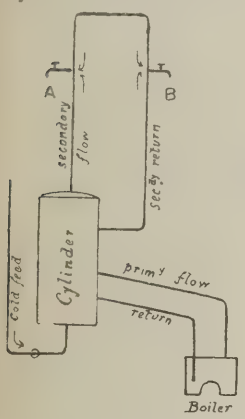


FIG. 1.

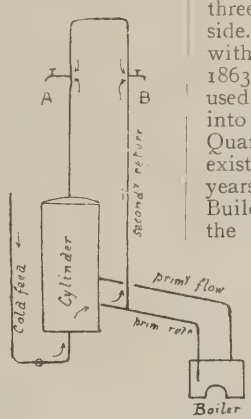


FIG. 2.

arrangement shown in Fig. 2 cold water would be drawn by the tap B direct from the feed-pipe to cylinder by way of the primary and secondary returns, and would even get round to tap A on the secondary flow pipe. This is common knowledge amongst the best hot-water engineers, and has been for many years. As soon as the fire is lit, a well-ordered cylinder will get hot first at the top the while it is cold at the bottom, and the hot water will, without mixing with the cold below, accumulate at the top and increase in volume downwards until the whole system is hot; consequently it is desirable to draw the hot water from the top of the cylinder as shown in Fig. 1, so that all that has been made hot is available as soon as needed

Curiously enough, I met with such a case as your expert recommends only a short time ago (Fig. 2). The owner complained of cold water succeeding hot soon after the bib-valve was opened, when all the time there was plenty of hot water in the cylinder. By means of a thermometer it was found that while water rose from the cylinder at 140 degs. Fahr., when tap B was opened it was at first nearly as hot, but almost immediately cooled down to 112 degs., whereas the reduction of temperature after passing round the circuit should not have been more than 2 degs. or 3 degs. Fahr. An examination of the connections showed them to be as in Fig. 2. This will be altered to Fig. 1 with a certainty of a satisfactory result.—Yours truly, J. D.

If the draw-off taps are all above the top of the cylinder, the secondary return may be connected to the side of the cylinder near the top. In some cases it is desirable to do so. In any case, taking the secondary flow in as direct a line as possible to the draw-off taps, and connecting the secondary return to the primary return—being careful to use a smaller pipe for the secondary return than for the secondary flow—will give satisfactory results. The secondary return should never be shorter than the secondary flow; generally it will be longer; and when it is also of smaller diameter—as it should be—the water obtained at any hot-water tap will be drawn along the larger flow pipe rather than along the smaller return pipe. Of course, some water will re-flow along the secondary return and issue from the tap mixed with the hot water drawn along the flow, but not enough to affect results. If the secondary return is connected to the cylinder, it should be of the same diameter as the secondary flow.

G. A. A.

The Stone used for the Glasgow Municipal Buildings.

To the Editor of THE BUILDERS' JOURNAL.

STENHOUSEMUIR.

SIR,—Referring to the answer given in your issue of December 17th as to the reason why the Glasgow Municipal Buildings need to be renovated, I should like to state that the stone used was Polmaise quarrystone on three sides and Dunmore quarrystone on one side. Col. Murray built Teuchadam Castle with the first of the Polmaise stone between 1863 and 1866, so that Polmaise was used twenty-two years before it was built into the Municipal Buildings. Dunmore Quarry has to my knowledge been in existence for fifty-seven years, or over thirty years before being built into the Municipal Buildings. Both of these two stones are of the famous Bannockburn seam and are everywhere considered good weathering stones. My opinion is that the use of machinery in sawing the stone into blocks for use in the building fired the part cut and weakened the weathering properties of the stone. If the Municipal Buildings and Teuchadam Castle are compared it will be found that though built of stone from the same quarry, Teuchadam Castle, erected twenty-two years before the Municipal Buildings, has stood the test of time and shows no sign of being weather-worn, whereas the Municipal Buildings are constantly being repaired. In Teuchadam Castle the stones were hand cut, but in the Municipal Buildings they were cut by machinery. I think stones cut by machinery should not be allowed on our chief buildings.—Yours truly, WILLIAM BURNETT.

The Blocked Column.

To the Editor of THE BUILDERS' JOURNAL.

LONDON, S.W.

SIR,—I was very glad to see your recent note on the blocked column. I am delighted that at last someone has denounced this silly and inartistic feature. It must be remembered that the rising generation of architects are carried away by a great name, and think that because eminent architects have introduced in their buildings certain features of questionable taste they must immediately imitate them. The termination of the New Scotland Yard gables, for example, has been often reproduced—there is a feeble imitation of it even on the same embankment. Take again a well-known designer of charming country-houses who, alas, is fond of introducing unnecessary buttresses; even these are being imitated. However exalted a position an architect may hold, when he perpetrates such follies he must expect that his works will be judged and condemned all the more severely by reason of the position he holds.—Yours truly, W. I. C.

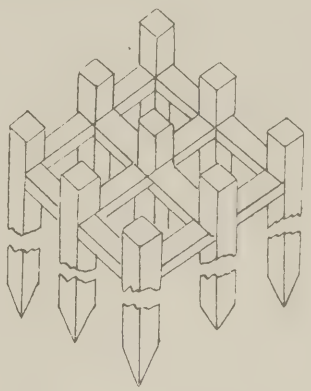
"Laying down a Skittle-Alley."

To the Editor of THE BUILDERS' JOURNAL.

SOUTHEND-ON-SEA.

SIR,—The writer of the article on "Laying down a Skittle-Alley" in your issue for January 7th seems rather inadvertently to have left out the main feature of construction—the rim and bed for the frame.

The shoe—*i.e.*, the player's end of the rim—should be 30ft. from the front pin and the rim 3ft. wide. The kerb should be rounded off at the top end, not taken off at an angle parallel to the frame as shown—it is this part which receives most injury from the cheese in the hands of the novice. The site for the frame should be excavated and a 6in. by 6in. oak or teak frame, as shown by the accompanying sketch, inserted to such depth as the nature of the ground warrants.



The excavated ground is filled in all round and between the frame with clay well rammed, and the frame proper securely fixed to the piles. The frame should be constructed of 6in. by 3in. ledges, halved and screwed to 1½in. beech boarding, with the iron plates for the pins securely fixed flush with the surrounding floor.

The end of the rim where the player stands should not have a kerb at all; it bothers the real skittle player, who in the proper game stands at this end and throws the ball—he does not bowl it nor does he run up half-way. The floor, therefore, needs to be gently sloped down to meet the level of the rim, which should be covered with sheet lead copper-nailed (a cocoa-nut mat will be sufficient to stop the return balls). The distance from centre to centre of the iron plates is, I believe, 1ft. 3⅛in., but I am not sure of the exact dimension. The roof should, above all, have a ventilated ridge running the entire length.

The light for the frame should have a bright metal screen, throwing the light on to the pins, hung on loose chains.—Yours truly,

A. E. SEWELL.

"The Duties of a Clerk of Works."

To the Editor of THE BUILDERS' JOURNAL.

DARLINGTON.

SIR,—I observe that your issue for December 31st last contains a paper on this subject read before the Glasgow Architectural Association by Mr. William U. Muir. While I am fully sensible of the honour which Mr. Muir has done me by referring to and in a few instances (at the commencement of his paper) quoting verbatim from my book "The Clerk of Works," I may perhaps be permitted to say that I think he might have continued to quote me word by word, instead of so frequently paraphrasing other parts of my work. That he has done this must be perfectly apparent to any person who has read both my book and his paper.

It is a consolation, however, to me to learn

that Mr. Muir considers my book "pretty well up to date as far as it goes," and this is the more gratifying to me from the fact that he refers to the fifth edition (1893), now ten years old! I may mention, however, that the work was revised and corrected by me in 1896, and has now reached its seventh, and probably eighth, edition.

I may be pardoned for adding that the book, in which I have now no pecuniary interest, has more than served its original purpose, as it has found a place in most free libraries and is frequently quoted from by barristers and others in reference cases. The copyright owners and publishers are Messrs. E. & F. N. Spon, 125, Strand, London.—Yours truly,

G. GORDON HOSKINS, F.R.I.B.A.

Enquiries Answered.

The services of a large staff of experts are at the disposal of readers who require information on architectural, constructional or legal matters. Questions should in all cases be addressed to the Editor. The querist's name and address must always be given, not necessarily for publication.

Free Libraries.

BIRKENHEAD.—LIBRARIAN writes: "What is meant by the term 'open access system' in connection with public lending libraries?"

In the "open access" system the borrowers are allowed to select the books from the shelves themselves. See an article on Public Libraries in "Specification, No. 6."

Fair Percentage on Builders' Work.

HIGHWORTH.—JOBBING writes: "What is a fair percentage for profit on the prime cost of labour and materials in country builders' jobbing work and day work—a percentage, say, to cover the cost of personal supervision generally and use of plant and interest on capital?"

Twenty-five per cent. on nett cost, and about ten per cent. on gross (including every charge for rent, office expenses, and supervision).

R.I.B.A. Examinations.

HULL.—E. L. writes: "Is it necessary to first pass the Elementary and then the Intermediate before entering for the Final examination R.I.B.A.; and similarly for the Intermediate?"

Yes; but there is a special examination, equivalent to the Final, for architects in practice not less than twenty-five years of age and for chief assistants over thirty years of age.

Oak Counters.

BOURNEMOUTH.—PERPLEXED writes: "I have recently completed some bar-fittings in Austrian oak where the architect has specified and insisted upon two counter tops 16ft. long and 22in. wide being in one piece, and would not allow a joint. I had great difficulty in getting oak of the size, and explained the matter to him, but was compelled to use the only boards I could obtain, which were quite sound and certainly well seasoned. The architect inspected and approved them before they were worked; but since fixing both have warped and one has slightly split. The heat of the bar is at times excessive, and I pointed out the likelihood of this, but he now condemns the work and insists upon its removal and replacement with a board in one piece, saying that the cause is through having heart wood. It is, of course, impossible to obtain boards of this width without heart. Can he insist upon this unreasonable demand?"

The demand for an oak board 22in. wide that will not warp is unreasonable, and we think you are entitled to refuse to replace the counter tops unless you are paid extra. Oak is extremely liable to twist and split, and no guarantee can be placed on it. Austrian oak is, of course, less liable to warp than English, but oak is unsuitable for counter tops. If the architect is prepared to pay for the alteration, ask him to find you up the boards and let him be responsible for their quality.

On Becoming an Architect.

GOTH writes: "(1) Would it be possible for a young man to become an architect who has taken his degree at Oxford at the age of twenty-five, but as yet knows nothing of the practical side of architecture? (2) If so, what course should he pursue, and what examinations must he pass? (3) How long should it take him (being moderately intelligent) to collect the necessary information, skill and experience? (4) Is apprenticeship necessary? (5) Has any book or comprehensive article been published dealing with the architect Pearson and his work?"

(1) Yes, several architects of great ability have only taken up architecture when middle aged. (2) Become articled to an architect, join the Architectural Association classes, and pass the Royal Institute examinations (the last is not necessary though advisable). (3) Three years' study and five or six years as assistant to gain experience. (4) No, though advisable. (5) An article on the late R. L. Pearson appeared in the "Architectural Review," Vol. I.

Inscription on Vases.

READING.—H. J. D. writes: "While staying at a country house I found an old vase with these words on it—Theriac Ton. What do they mean?"

The vase referred to evidently belonged originally to a chemist, as the words "Theriac Ton" refer to its contents. The word "Theriac" is a contracted form of Theriaka. The word "Ton" might be a contraction, "Theriaca" meaning treacle, but that from its nature would be an impossibility in this instance. It will be invariably found that all these china vases, with an inscription, were originally for drugs. They are generally of Dutch make. Perhaps an inspection of the vase might lead to a mark being found which would decide its manufacture. ANDREW OLIVER, F.R.I.B.A.

H.M. Office of Works.

PERSEVERANCE writes: "(1) In particulars I have obtained of examination subjects for entering H.M. Office of Works it is stated that 'an official nomination is required for this situation, but the Commissioners can give no information as to the means by which such nominations may be obtained.' Can you enlighten me how I, a provincial, can obtain a nomination, and also say what is meant by 'official'? (2) What are the salaries? (3) Is this Government post worth obtaining? (I am over thirty, and therefore ineligible for others.)"

(1) Nominations are rarely given to any but draughtsmen temporarily employed in H.M. Office of Works. In that capacity they are tested, and if found suitable for permanent employment may be "nominated" by the chief surveyor for an examination. Generally three nominations are made for each vacancy. (2) The salary commences at £150 a year, and rises by £10 per annum to £250, with prospect of further promotion. (3) The position suits unambitious men, as the work is not difficult and responsibility slight. Temporary employment in the department should, however, be secured before thirty years of age. It is obtainable by application direct, stating qualifications, &c.

G. A. T. M.

Government Surveyor Abroad.

PONTYCLUN.—CARDIFF writes: "To whom should I apply for a situation as junior surveyor or engineer under Government for foreign service? Also, is it compulsory to sit for any examination to become an assistant surveyor or engineer under Government abroad, and what would be required of anyone wishing such a situation?"

The regulations vary in different colonies and countries. It is very difficult to obtain an appointment such as is mentioned in India except by passing through Cooper's Hill Engineering College, which is expensive but sure. It often leads to appointments in Egypt also. For most of the English colonies, however, application should be made to the Agent-General for the Colony in London, stating qualifications and age; but success is not to be looked for, as there are plenty of good men as a rule to be obtained locally. Foreign governments should be avoided, and so should bad climates. G. A. T. M.

Examination for Building Surveyors.

TUNBRIDGE WELLS.—A. H. T. writes: "Would a clerk of works, formerly a foreman and mechanic, age thirty-five, be eligible to sit at the examination for building surveyors under the R.I.B.A.? If so, kindly name the necessary books to study?"

The examination is intended for candidates who are desirous of becoming building surveyors under local authorities. A clerk of works of good experience and training would be eligible, but in an individual case such as that mentioned the best course is to write a letter of enquiry to the Secretary, Royal Institute of British Architects, 9, Conduit Street, Hanover Square, London, W., giving full particulars of previous training and occupation. The following books are recommended:—Rivington's "Building Construction"; Stock's "Shoring and Underpinning"; Moore's "Sanitary Engineering"; and Knight's "Annotated Model By-laws."

T. E. C.

Pyramid Turret-shaped Roof.

SOWERBY BRIDGE.—G. E. W. writes: "Make the drawing of an octagonal pyramidal turret-shaped roof; span 45ft., height 46ft. All timbers to be shown and dimensioned, and the geometrical method of obtaining the angles of the backs of rafters, purlins, &c., should be shown."

This is an apparently useless question, and a large amount of work would be required to answer it as desired. No architect would think of making a design for such a roof without knowing where it was to be fixed, why it was needed of this peculiar size and shape, what it was to be covered with, whether or not in an exposed situation, &c. If an examination question, it should be stated where from, and some effort at least should be made by the correspondent to work it out for himself. The method of obtaining the angles of the backs of rafters, &c., can be found by reference to almost any modern text-book of carpentry and joinery.

HENRY ADAMS.

No. 20, Arlington Street, London.

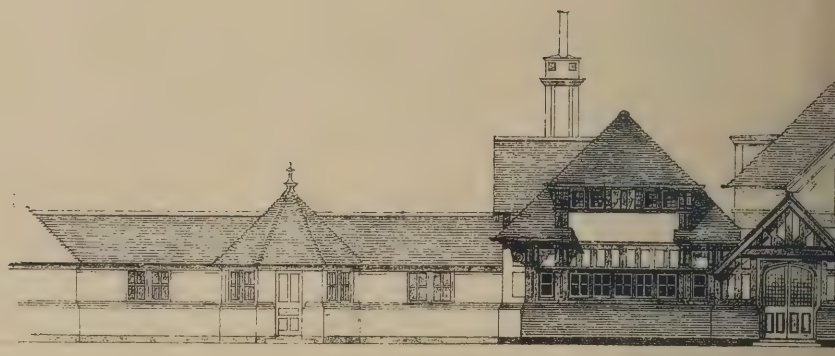
TEDDINGTON.—PIPS writes: "There is a house, No. 20, Arlington Street, Piccadilly, which shows serious signs of decay in the stonework, which is crumbling badly. I should be glad to know of what stone this house is built and the date of its erection."

As no records have been discovered by us, it is impossible to answer this query definitely, but careful examination suggests that the stone is that known as Ham Hill. It is of a rich yellow colour, with a marked and uneven bedding or grain along which the weathering has occurred, exactly resembling the way in which Ham Hill stone has crumbled in the Tudor buildings of Somerset.

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EAST ELEVATION OF MIXED SCHOOL.

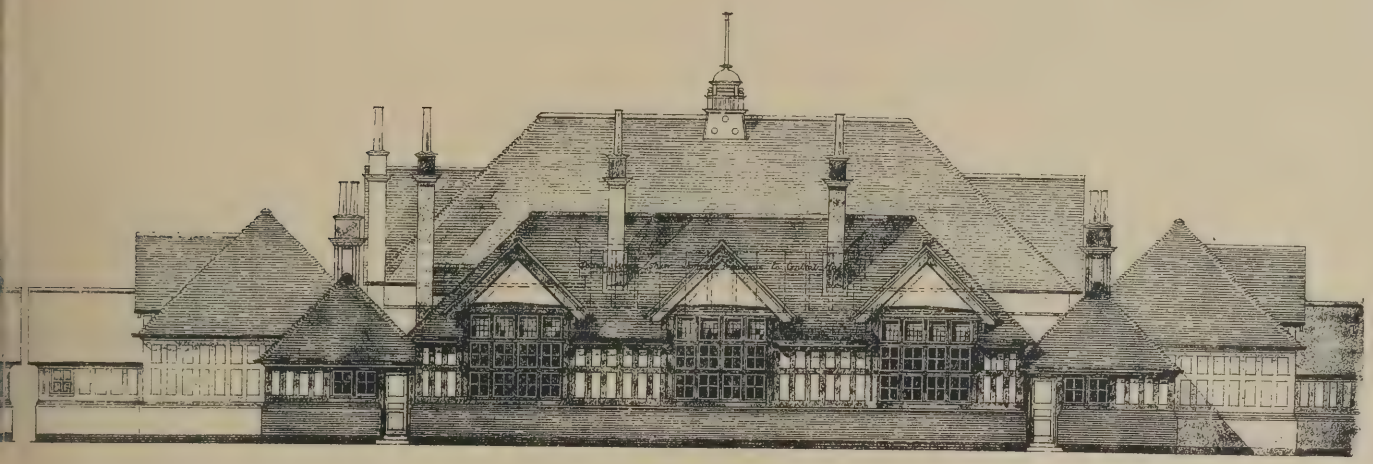


NORTH ELEVATI

Scale of 10 8 6 4 2 0 10



EAST ELEVATION OF INFANTS' SCHOOL.

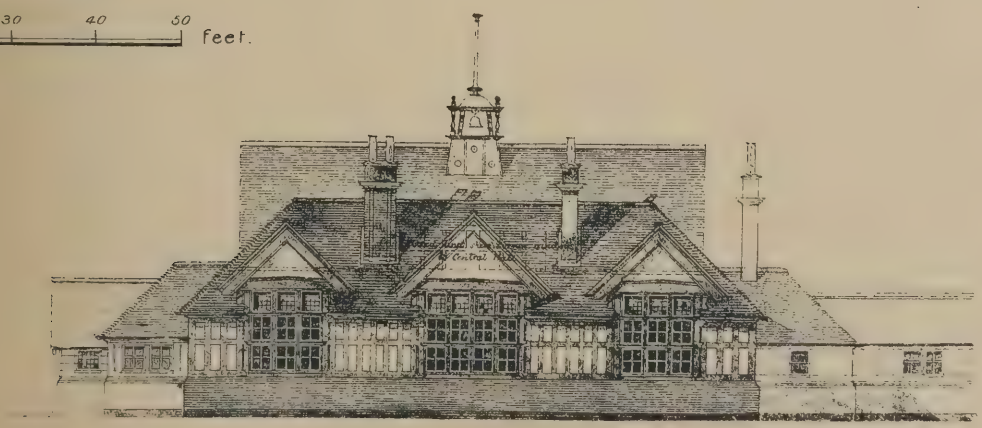


WEST ELEVATION OF MIXED SCHOOL.



F MIXED SCHOOL.

30 40 50 feet.



NORTH ELEVATION OF INFANTS' SCHOOL.

"INK-PHOTO." R. J. EVERETT & SONS, 56 LUDGATE HILL, E.C.

.. S. JACKSON, ARCHITECT.

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shire, while it is apparently of the same composition—a limestone containing small flat shells and also small flints little larger than sand grains. The porch, which is the more decayed portion of the building, seems to be older than the rest, its mouldings and detail generally being the less impure. It may be as much as a hundred years old, while the main building must have been erected much more recently but with the same stone. G. A. T. M.

"Lignolite" Flooring.

CARMARTHEN.—ALPHA writes: "Who are the makers of 'Lignolite' patent flooring?"

Bernhard's Lignolite Flooring Co., 69, King William Street, E.C. (see the BUILDERS' JOURNAL for December 17th last, p. xi).

"Kitcheners" and "Kitchen Ranges."

TIMPERLEY.—D. B. writes: "Are kitcheners and kitchen ranges two different names for the same thing?"

The two words refer to practically the same thing, though "kitchener" is sometimes used for a portable contrivance rather than a fixture.

Architectural Lantern Slides.

LEEDS.—CONSTANT READER writes: "Who make a speciality of architectural lantern slides for lecture purposes, &c.?"

Write to Newton & Co., 3, Fleet Street; G. W. Philip & Son, 32, Fleet Street; and Walter Tyler, 48, Waterloo Road, S.E.

Organ-Chambers.

D. writes: "Is the tone or quality of an organ affected by the fact of the roof being constructed in the ordinary way with rafters and tiles plastered on the soffit, or boarded instead of plastered, or when vaulted in stones and the same plastered?"

From our experience of organ-chambers we have no hesitation in saying that a vaulted stone roof is the best; or failing this one boarded (without any sharp angles) and plastered. If the ordinary rafters are used the ceiling should be plastered to form a resonant surface. There is no doubt that a plain-boarded ceiling is the *least* effective of all from a musical point of view.

NORMAN & BEARD, LTD.

Welsh Slates.

WELLINGTON.—H. J. writes: "The best Welsh slates being specified in a specification, what slates should they be? From which Welsh quarries are the best obtained and what are their characteristics?"

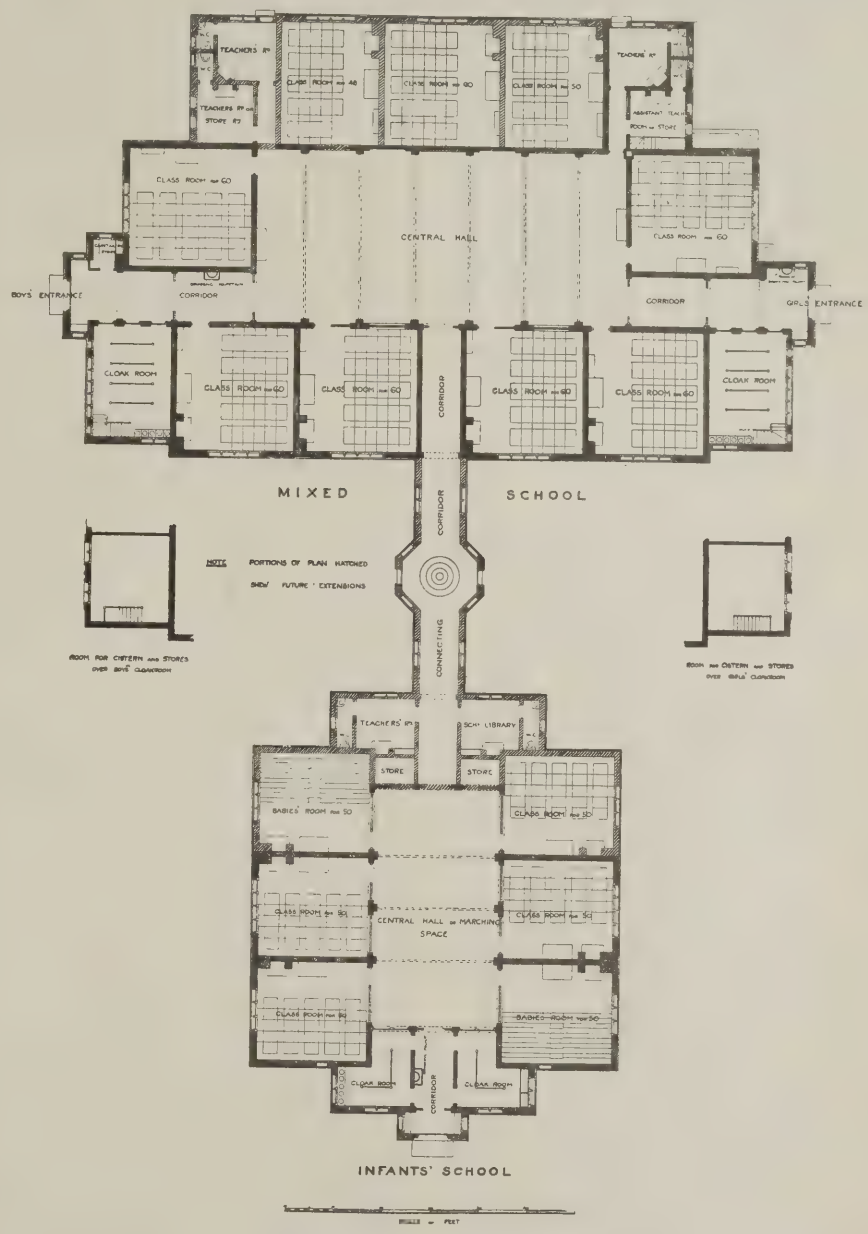
The terms "Bests," "Seconds," "Thirds," and "Tons" are trade terms applied to slates. They do not imply, as is sometimes supposed, that the *metal* of a second or third slate is inferior to the *metal* of a best slate. They really have reference to the combined "qualities" of a best slate, namely: Straightness, absence of blotches, uniform cleavage, &c., and the thickness, &c., of a second and third slate. The *metal* is equal in each case—the seconds and thirds making a much stronger roof than the bests, though not quite so pleasing to the eye. The first three qualities are sold by the count—1,200 per thousand, with an extra allowance of 60 slates per thousand for breakage in transit. "Tons" are sold by weight. Welsh slates are practically all of equal quality, coming from the same deposits of rock. The largest vein or bed is the Bangor or Carnarvon, and runs from the Penrhyn quarries through Llanberis to the Nantlle Valley, where most of the Carnarvon quarries are situated. Welsh slates can be had in the following colours:—Blue, red (or purple), grey and green. Although "Bests" are higher in price than "Seconds" and "Seconds" than "Thirds" at quarry there is not much difference in the three when put on roof complete, due to difference in cost of carriage. For further particulars see "Specification, No. 6."

Bricks and Mortar.

Aphorism for the Week.

Genius is the faculty by which the mind is enabled to conceive and express its conceptions; whilst taste guides genius in discerning, embracing and producing beauty.—JOSEPH GWILT.

Our Plates. The State Library at Aarhuus, Denmark, was opened to the public on June 17th last year. The architect is H. Kampmann, Inspector of Buildings. The reading-room occupies the central and larger part of the buildings, and is illuminated during the day through the large skylight in roof. Around the hall, and in three storeys, are arranged the bookstalls—four large and nineteen smaller rooms. Smaller apartments, for the lending department, librarian's offices, cloakroom, book storage, &c., cluster around the central hall. Electric lighting and two electric book lifts are provided. The building is of red brick with a fine stucco doorway at the main entrance (see p. 373) and window panes in glass mosaic.—The design for a Board school by Mr. S. Jackson, of 65, Fenchurch Street, E.C., was proposed to be carried out in half-timber and rough-cast, with brick base and red tiles on the roof. The drawings need no more explanation. The accommodation is shown by the plan reproduced on this page. The hatched portions indicate future extensions if needed.



PLAN OF BOARD SCHOOL. S. JACKSON, ARCHITECT.

Architecture in Wales. IN Wales architecture has almost been entirely neglected since the epoch of castle building, says the "South Wales Daily News," and the structural anachronisms which meet the traveller in the hamlets and towns in the Principality to-day beggar description in many cases, and this is all the more remarkable because they occur in a country so lavishly endowed by Nature, and which, perhaps, surpasses all parts of the kingdom in the richness and variety of its castellated and monastic ruins. Architecture, in Wales as elsewhere, received a powerful set-back under the regime of the Puritans. These stern austere men, as saints and soldiers, were excellent, but they did not always see the beautiful in art. The result is obvious in the sacred and secular structures of the period; and they remain to this day. Doubtless the form of many an early Dissenting chapel—a contrivance of four walls and a roof—was governed by the circumscribed means of the worshippers; but in our own day this is no longer the case, for it is no uncommon sight to find a wealthy congregation of many hundreds

were shipping in a church whose architectural features are not in keeping with the landscape. The character of some public buildings and the ungainly and tortuous disposition of the streets, which not only offend good taste but are highly objectionable from a sanitary point of view, also suggest how much Wales lags behind in this respect. The charge of want of latent powers in the department of architecture can never be brought against the race which gave to the world John Gibson and Inigo Jones. What is needed to bring about a reform in this as in many other Welsh matters is steady concentration of effort.

A Welsh Chair of Architecture. The late Mr. Tom Ellis, whose sterling worth and clear-headedness the people of Wales can never over-estimate, included amongst his most cherished ideas the establishment in the University of Wales of a school of architecture which should slowly and surely guide the Welsh people in this matter. It cannot be doubted that the establishment of such a chair in the Welsh University would exercise a stimulating and wholesome influence upon the thought and activity of Wales. A Welsh professor of architecture, as suggested by Mr. Ellis, would be a witness to the need of thought and care and conscience in the rearing of buildings worthy of the beautiful hills and fair valleys of Wales. He would be a standing protest against characterless, meaningless and makeshift buildings, and would help to increase the influences for elevating the public taste and for making architecture, like music, a democratic art in the Principality.

Two Churches in Buckinghamshire. The Bucks Architectural and Archæological Society, of which Earl Rosebery is president, has had its attention drawn to the interesting and, in some respects, unique features of the parish church of St. Bartholomew at Fingest, not far from Marlow. Mr. W. A. Forsyth, A.R.I.B.A., reports that of the churches of the Desborough Hundred that at Fingest, though comparatively little known, is perhaps the most remarkable in the matter of proportions. It possesses a dignity and grandeur seldom seen in churches of the village type. The feature which produces this particular character, and so compels attention, is the Norman tower, not only by reason of its unusually large scale in relation to the nave but also by its actual design, in which latter respect it is, perhaps, unique. The other parts of the church are very small in extent, and consist of a twelfth-century nave, to which the chancel was added a century later. The roof is a fine thirteenth- or fourteenth-century example of oak construction. Another extremely interesting Bucks church is that of St. Martin's, Fenny Stratford, where in the north aisle an armorial ceiling commemorates some of the donors who helped to build the church in 1726. The ceiling is of great interest; it is flat, and divided into no fewer than forty spaces (ten rows of four spaces in a row), and in each space is a coat-of-arms with the owner's name and title.

The Parthenon Restored. The scaffolding which has encumbered the Parthenon for the last four years has at last been removed, and the magnificent temple, which was shaken so severely by the earthquake of 1894, has been restored to view without the hideous, but necessary, accessories of the workmen. The cost of the work is estimated at about £5,000, which has been defrayed by the Greek Government in spite of various offers of pecuniary aid from France and America. The Erechtheion is now in course of restoration, and it has been suggested that the British Museum might take this opportunity of giving back to Greece the missing caryatid carried off by Lord Elgin and replaced by a terra-cotta copy.

The Dean of Ely and Liverpool Cathedral. For the purpose of augmenting the Liverpool Cathedral fund a lecture was delivered last week at Liverpool by the Dean of Ely. The subject chosen was "Ely Cathedral: or Lessons from an Old Cathedral for the Builders of a New One." He said he certainly hoped that the type of architecture chosen for the Liverpool Cathedral would be the Early English; and regarding the site, although London Road might offer some advantages, it was both commonplace and uninteresting. If that site were chosen, the architecture of St. George's Hall might be utilised. But in his opinion St. James Mount was one of the most picturesque sites in Europe, and a magnificent cathedral might be erected there provided it were treated with artistic power and its features made the most of, as an artist would delight to do. Though the style of the building should, within reason, grow out of the conditions of the time, he thought the octagonal centre might be adopted, as it was useful for modern purposes and for great congregations. It had been utilised both at St. Paul's and at Ely. And to possess a structure of noble proportions an expenditure should be made of about a million and a quarter of money, or an equal amount to that spent on one of the great Cunarders.

Norman Fonts. At a meeting of the British Archæological Association held last week the Rev. H. J. Dukinfield Astley read a paper on "The Norman Fonts of North-West Norfolk," dealing with those of the group of churches from Fincham, a little south of Lynn, northwards to Burnham Deepdale. These might be arranged in two divisions; in the first there was more or less ornamentation, while the second was distinguished by figure sculpture. To the first belonged the fonts of Hunstanton, Ingoldisthorpe (originally square but made octagonal in the fourteenth century), Castle Rising, the only piece of original Norman work in a well-restored church, South Wootton, Shereborre, Bagthorpe, Great Snoring and Toftrees. The font at Sculthorpe formed a link between the two, for on three sides it bore geometrical decoration, and on the fourth St. Joseph, the Virgin Mother and the Magi. The fonts at Fincham and Burnham Deepdale showed figures; on the four sides of the former were Scriptural subjects, and on the three sides of the latter the husbandry of the months according to the Anglo-Saxon calendar, while the fourth side was decorated with leafages. The fonts, with details of the ornamentation, were shown on the screen, and a number of other specimens of Norman work from other churches, notably the "mermaid" font in St. Peter's, Cambridge, as well as examples in the museum at Caen. The lecturer dwelt on the composite nature of Norman art, the Byzantine character of which had been modified by Scandinavian and Celtic influences, and said that the circles and spirals might be traced back not only to Mycenæan but even to Neolithic times.

Old Glasgow. At last week's meeting of the architectural section of the Royal Philosophical Society of Glasgow Dr. David Murray read a paper on "The Architecture of Old Glasgow." In the course of his remarks he said all the mansions, great lodgings and stately tenements, so affectionately catalogued by M'Ure in his old history of Glasgow, had disappeared. All the picturesque streets and long interlacing closes had been mercilessly swept away by the Corporation, and a spick-and-span new town substituted, more commonplace than any American city. It might be well questioned whether all that was necessary for the sanitation of the city could not have been effected without the wanton destruction of whole streets of picturesque and characteristic buildings. In his early days it was a constant pleasure to wander down the High Street and the Salt Market, and the Bridgegate and Stockwell, and through the endless closes which fringed them. Now all had gone, and it was impossible to recognise the streets or distinguish the localities.—Commenting on Dr. Murray's remarks, the "Glasgow Evening Citizen" says: "Time had done its worst with the tenements and streets of Old Glasgow. Still more serious than the creeping fingers of Time had been the work of rough and riotous generations of men. Between these disintegrating forces, the inevitable and the casual, the condition of the houses that have been removed by the Improvement Trustees was entirely beyond improvement or restoration. To take them away from the ground on which they were simple encumbrances was the only treatment left for them. But yet Dr. Murray was far from ill-advised in the position he took up last night on the subject of town restoration. The removal of old buildings, if they can by any possibility be preserved, is something approaching to a crime, whether it be the work of a single proprietor or of a municipality. They lend an added interest to the life of to-day that passes to and fro among them. . . ."

Norris Castle. Norris Castle, so familiar to voyagers along the Solent, is announced to be sold. "This," says the "Daily Chronicle," "is a modern building, and it is strong testimony to the skill with which its architect imitated antiquity that by many (including even a usually well-informed contemporary) it has been mistaken for the older castle once standing on the same site. In all probability the next few years will see rapid development in this part of the Garden Isle, destructive of the exclusiveness so long its main characteristic; and Lord Ampthill is doubtless well advised in parting with the estate, which is soon to pass into the builder's hands."

A Naval Training College. A splendid new training college for the future officers of the United States Navy is in course of building at Annapolis. The new academy, which is being erected from the designs of Mr. Ernest Flagg, is to have a frontage of 635ft. upon the Annapolis Harbour. The principal building is the home for the students, from each end of which extend imposing colonnades leading to the armoury and boat-house. In the armoury sufficient space is to be provided for drilling 500 men at the same time. At the back of the students' quarters is the building in which classes will be held. The laboratory is to occupy a separate building, as will the department of marine engineering. The ship basin is to be deep enough to enable the training fleet to enter the docks, and it will also accommodate all the vessels used by the students. The approach to the basin will be terraced with rows of broad steps reaching to the top of the bank, forming an amphitheatre. The open space from the bank of the river to the nearest building will be 412ft. long and 250ft. in width. This, however, will not be used as a drill ground, the evolutions of the cadet corps out of doors being carried out on the area which will be provided directly in front of the quarters. The cost of the new college is expected to be six million dollars.

Messrs. Davies & Maltby, architects and surveyors, of 6, St. John Street, Hereford, have dissolved partnership as and from September 1st last.

Builders' Notes.

Dissolution of Partnership.—The partnership hitherto subsisting between Messrs. Bridge & Neal, builders, of Cricklewood, N.W., has been dissolved as and from January 8th.

Workmen's Compensation Act: Proposed Amendments.—On Thursday last at the Westminster Palace Hotel the Parliamentary Committee of the Trades Union Congress and representatives of trades held a conference for the purpose of discussing a series of proposed amendments to the Workmen's Compensation Act of 1897. The proposed amendments are to be printed for circulation among the members of the trades interested.

The Midland Centre of the National Federation of Building Trade Employers of Great Britain and Ireland held its annual meeting last week at Birmingham, under the presidency of Mr. W. Sapcote (Birmingham). The chairman proposed the election of Mr. C. H. Barnsley as president for the ensuing year. The motion was seconded by Mr. J. V. Porter, and accepted. Mr. James V. Porter (Derby) and Mr. H. Willcock (Wolverhampton) were elected vice-presidents; County Alderman Bowen, J.P. (Birmingham), treasurer; Councillor F. G. Whittall (Birmingham) and County Councillor Dallow (Blackheath) auditors.

South Shields Builders and the Sea Sand.—The builders of South Shields have addressed a petition to the Corporation with regard to the prohibition of the removal of sand from the foreshore. The Council stopped the practice some time ago on the ground that it tended to reduce the level of the beach, thereby bringing the high-water mark dangerously near to the land. This supposition the Builders' Association deny, stating that there is now on the beach between the South Pier and the Trow Rocks an accumulation of sand amounting in weight to 1,600,000 tons more than there was when the 1855 survey was made.

German Brickmakers and the Proposed Large-Sized Brick.—A subject which has been much discussed by German brick manufacturers is the circular issued by the Minister of Public Works to brick manufacturers, as follows:—"In the building division of my ministry it has been urged for some time past that for brick buildings of a monumental character, that should present the most impressive appearance, and particularly for churches, the size of the bricks should be that which was in use during the Middle Ages, as by using this larger size a more imposing and worthier effect can be produced than with the standard size. An enquiry was addressed to provincial officials, and it appears that the dimensions which would be preferred are as follows:—Length 11⅛in., breadth 5¼in., thickness 3½in." The Brickmasters' Association considered the matter and came to the following conclusions:—The present German standard size of 9⅞in. by 4¾in. by 2½in. for building and front bricks is in every respect the most favourable and the most useful. If a more imposing and worthy effect is desired, then it would be better, instead of increasing the size of the bricks, to make them a suitable colour. This has been done in the case of a number of churches for Berlin and with the happiest results

An International Fire Prevention Congress is to be held from July 7th to 10th next in connection with the Fire Exhibition at Earl's Court. There will be a congress banquet on July 7th. Two of the days will be devoted to general meetings and one day will be devoted to the sectional meetings, each of the six separate sections working separately. The Congress languages will be English, French and German. Applications to present papers should be made to the secretary of the British Fire Prevention Committee, 1, Waterloo Place, London, S.W., at the earliest possible moment, giving title, headings, abstract or summary, and particulars as to the nature of illustrations. Papers will be printed in full in the report of the Congress, but their delivery will be strictly limited to thirty minutes, and any member participating in the discussion on a paper will be limited to ten minutes. The Congress will consist of foreign delegates, imperial delegates and ordinary members (the last including architects, surveyors, civil, electrical and mechanical engineers, &c.). Imperial delegates and ordinary members will receive their cards on forwarding the sum of twenty shillings to Mr. Ellis Marsland, the general hon. secretary of the British Fire Prevention Committee, before March 31st next. After April 1st cards will only be issued at the sole discretion of the Executive at a fee of £1 10s., and at the double fee of £2 if applied for after July 1st. The Executive reserve the right to limit the number of ordinary members to 1,000.

BUILDERS' FOREMEN'S ASSOCIATION.

THE ninth annual dinner of this Association was held at the Holborn Restaurant on Saturday evening last. The company numbered nearly 200, and included Mr. John C. Hill (chairman), Mr. T. E. Clark (J. Carmichael), Mr. H. T. Ashby (Ashby Brothers), Mr. R. Gardiner (Hicks, Gardiner & Co.), Mr. Sheffield (Sheffield Brothers), Mr. B. G. Thompson (Trollope & Sons), Mr. H. Hibberd (Hibberd Brothers), Mr. J. Campbell Cree, Mr. B. Carter (Stephens & Carter), Mr. W. Salter (Salter & Co.), Mr. Sydney Butler, Mr. R. W. Stevenson (London Brick Co.), Mr. Gathercole (Gathercole Brothers) and Mr. Spencer Green (past-president of the Clerks of Works' Association). In proposing the toast of the Association the chairman said the builder's foreman was the man who had to control the erection of buildings and it depended very largely on him whether the work would be stable or not. Of course the architect provided a clerk of works, but that gentleman was sometimes more ornamental than useful. The Association had three sides to its work—the social, the educational and the self-protective. There was no doubt that meeting together and discussing the various matters was of great benefit to them, especially to the younger men. A builder's foreman had never done educating himself. New methods and new materials were constantly being introduced, and he needed to keep himself abreast of the times: in addition to which he had the difficult task of pleasing the architect, the clerk of works, the workmen, and his employer—the last more especially by making the job pay. Referring to education, he said he should like to see it possible for every young man to get a technical training; to see a Government school in every town with a technical school attached to it. He expressed regret that not more master-builders of London were connected with the Association: he himself announced his intention to become a life member and to pay a fee of ten guineas in doing so. Mr. George Thomson, president of the Association, responded to the toast. He urged members to support him in the work of the Association, and pointed out their aims, which were for the betterment of builders' foremen in carrying out their duties and to be a source of help when evil days fell upon them. Mr. Sydney Butler proposed "The Building Trades," observing that next to agriculture the building trades were the most extensive in the country, and that they might be regarded as an index of the prosperity of the country.

Mr. H. T. Ashby responded. He was of opinion that the welfare, good name and profit-earning interest of the building trade rested more with the builders' foremen than with those who were supposed to direct them. He was a believer in association—in association with the trades' unions. He recognised the right of the men to look after their interests, and when president of the Institute of Builders he was glad to come face to face with those who carried on the great building trade of London. One benefit of association was that it enabled men to meet together as trusted representatives to discuss matters. Builders' foremen needed to be in touch and in sympathy with those whom they directed and, above all, to be tactful. He did not believe in rough methods, and certainly not in bullying, and when he had found a foreman using bad language he had always got rid of him. Every building was a fresh education. He hoped that eventually the Association would institute examinations. Every builder, one might say, made his own foremen—they grew up with him; but it was difficult to fill their places, and it would therefore be of great benefit if one might come to such an association as this and be sure of securing trustworthy men. Other toasts were "The Visitors," proposed by Mr. B. T. Price, and "The Chairman," proposed by Mr. B. Carter During the evening various songs were rendered by Messrs. J. Davis, S. Blackmore and A Skinner. Mr. A. E. Munro gave a piano and a cornet solo, and Mr. Valentine Hill a humorous recitation.

The secretary of the Association is Mr. W. Cook, Memorial Hall, Farringdon Street, E.C.

Masters and Men.

Labour in December.—The Labour Department of the Board of Trade reports that the general state of employment declined slightly during December. In the 224 trade unions, with an aggregate membership of 552,415, making returns, 30,302 (or 5·5 per cent.) were reported as unemployed at the end of December, as compared with 4·8 per cent. in November and 4·6 per cent. in the 216 unions, with a membership of 544,018, from which returns were received for December, 1901. The mean percentage of unemployed returned at the end of December during the past decade was 5·3. Employment in the engineering and metal trades shows a falling off in most branches, and continues worse than a year ago. The percentage of unemployed union members at the end of December was 6·2, compared with 5 per cent. in November and with 5·4 per cent. in December, 1901. Employment in the building trades is very dull, and on the whole shows a slight decline as compared with a month ago and little change as compared with a year ago. The percentage of unemployed union members among carpenters and joiners was 5·9 at the end of December, as compared with 4·4 in November and 6 in December, 1901. The percentage for plumbers was 5·6 at the end of December, as compared with 5·7 at the end of November and 4·4 in December, 1901. Fifteen new disputes began in December, involving 3,928 workpeople, of whom 2,215 were directly and 1,713 indirectly affected. The corresponding number of disputes in November was twenty-four, affecting 6,436 workpeople. Of the fifteen disputes in December, 1902, one took place in the building trades. The principal advances affected 4,000 slate quarrymen at Ffestinog and 5,500 blastfurnacemen in Cleveland and Durham. The principal decrease affected 5,000 iron and steel workers in South Wales.

Views and Reviews.

The King's Prize Essay on a Sanatorium for Consumptives.

The decrease of consumption and the growth of cancer are perhaps the two most notable medical facts of modern times. We have as yet no cure for cancer, but it is possible one may be found by means as seemingly foolish as those which have proved so wonderfully successful with consumptive patients. Medical men are certainly doing everything within their power to find a cure; and, as regards consumption, they are still experimenting, though enough has already been done to establish some general principles and rules which must govern every case.

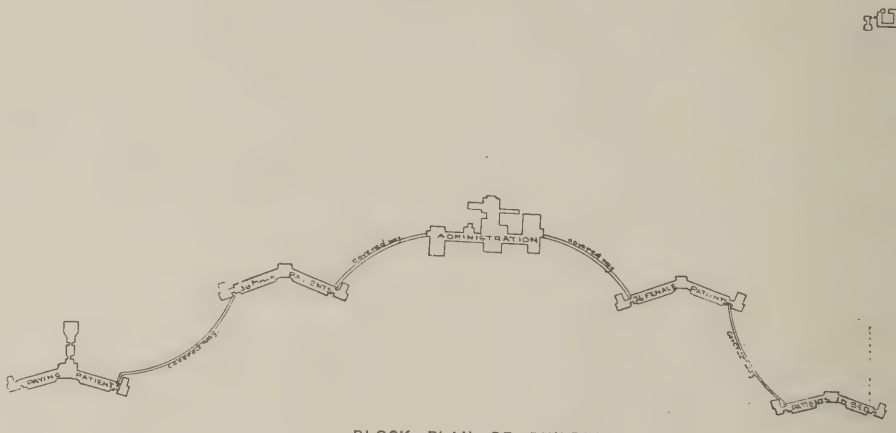
It will be remembered that Sir Ernest Cassel placed £200,000 at the disposal of His Majesty the King for the erection in England of a sanatorium for tuberculous patients—consumptives—and that about a year ago a competition was held for the best essay on the subject, three money prizes, of £500, £200 and £100 respectively, being offered. One hundred and eighty essays were sent in. The prize essay, now embodied in this book, was by Dr. Arthur Latham (London), associated with Mr. William West (London) as architect: and we may say at once that it is the best book an architect could get who wishes to know, briefly and critically, what has been done in regard to sanatoria for consumptives and what are the exact requirements of such a building

It was laid down in the conditions that the King's sanatorium was to be for 100 patients—fifty of each sex—and that eighty-eight of the beds were to be for the more necessitous classes and twelve for the well-to-do.

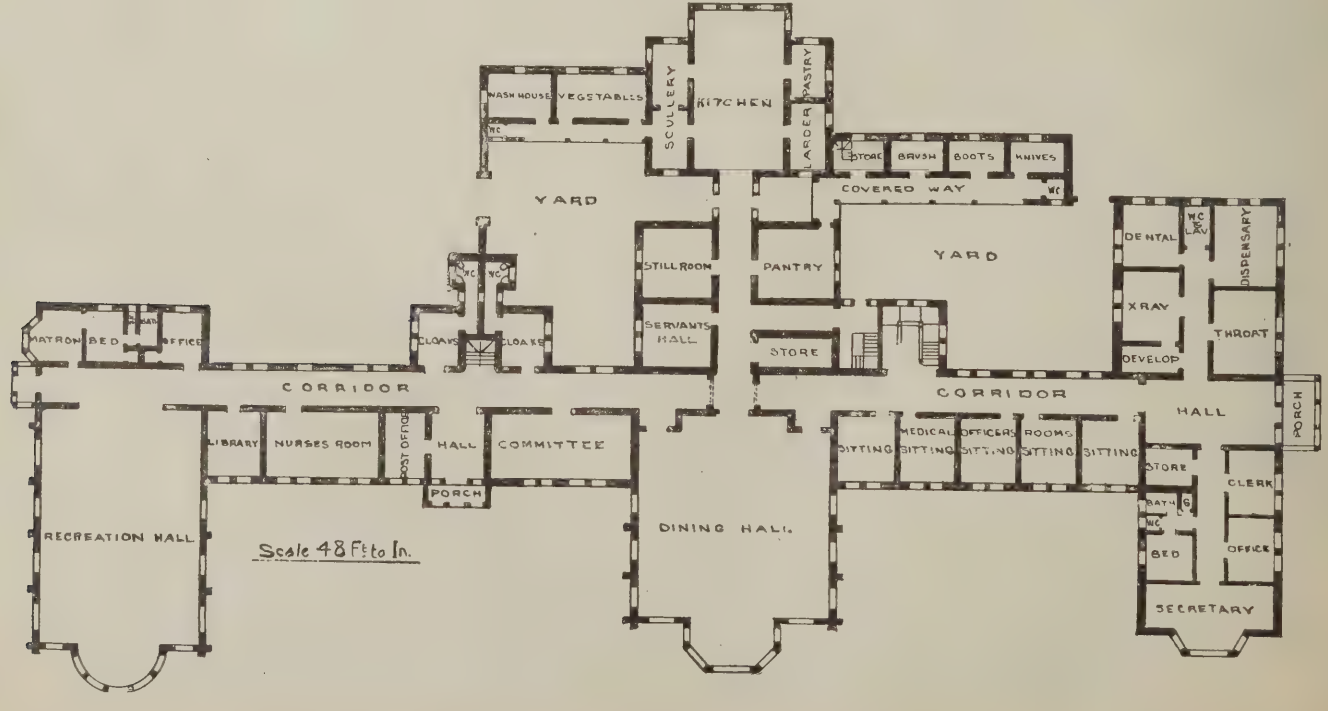
In an historical introduction the author deals succinctly with the experiments and results of many men who have devoted their lives to this subject—Hippocrates, even, said twenty-five centuries ago that tuberculosis was a curable affection, but it has taken all this time to prove that assertion. On the face of it the treatment seems absurd. To take a delicate person suffering from consumption and place him in the open air in all weathers, practically night and day, does really seem suicidal, and for that reason the idea met with ridiculing opposition. Brehmer, the man who may be regarded as the founder of the treatment, was bitterly opposed on all sides, but eventually convinced the world of the efficacy of his methods. "It has been found by experience that no amount of exposure to wet or any variation of temperature causes the most delicate patient to contract what is termed a chill, or to suffer any other harm, so long as an open-air life is led and the exposure is constant. If patients are well nourished, sufficiently clothed, and sheltered from the wind, any degree of cold may be defied. At Falkenstein, for example, patients lie out of doors for many hours during thick fog and snowstorms, and when the temperature is 10 degs. to 12 degs. C. below freezing-point." That is Brehmer's method, and it has been found to be much more efficacious than the introduction of any heated air, as first tried at the Victoria Hospital, Edinburgh, and the hospital at Bridge of Weir in Scotland.

The influence of these facts on the planning of the buildings is very great. There must be, for example, no large rooms where patients may congregate, while the bedrooms need to be arranged so as to be continually flushed with air. Eo go into these matters would occupy too much space, and we must refer readers to this book if they wish to fully understand them. We may, however, note the author's conclusions that the bedrooms of the sexes should be, as far as possible, in separate blocks; the accommodation for visitors should be strictly limited; no special provision should be made for exciting amusements, but a good library and other forms of harmless recreation provided; heating should not affect the humidity of the air; and efficient shelters must be provided against wind, sun and rain. Verandas are objected to because patients tend to collect in chattering groups, and, forgetful of advice, gesticulate and become excited so that dyspnœa or cough is induced; while if glass screens are used to prevent neighbours who require absolute quiet being disturbed the main feature of the veranda is lost: and there are other objections.

Part II of this book attempts to carry out the foregoing principles by the construction of a suitable building, plans and a section of which are given, but no elevations. Existing sanatoria are of two classes—those consisting



BLOCK PLAN OF BUILDINGS.



ADMINISTRATIVE BLOCK: GROUND-FLOOR PLAN.



BLOCK FOR THIRTY-SIX MALE OR FEMALE PATIENTS: GROUND AND FIRST FLOORS.

of one large building and those consisting of several small buildings. Both have their advantages, and the authors of this essay give alternative plans, but prefer the latter system. The general arrangement of the buildings is shown by the accompanying block plan, which is self-explanatory. The main front of the building should be south, south-south-east or south-south-west, and the site should be sheltered from the prevailing winds. A plan of one of the patients' blocks is given on this page. The central portion faces directly south, one wing facing south-south-west and the other south-south-east. "In this way advantage is taken of the sunshine on the northern as well as the southern aspect, whilst the two wings and their sanitary towers tend to shelter each other from the effect of the wind."

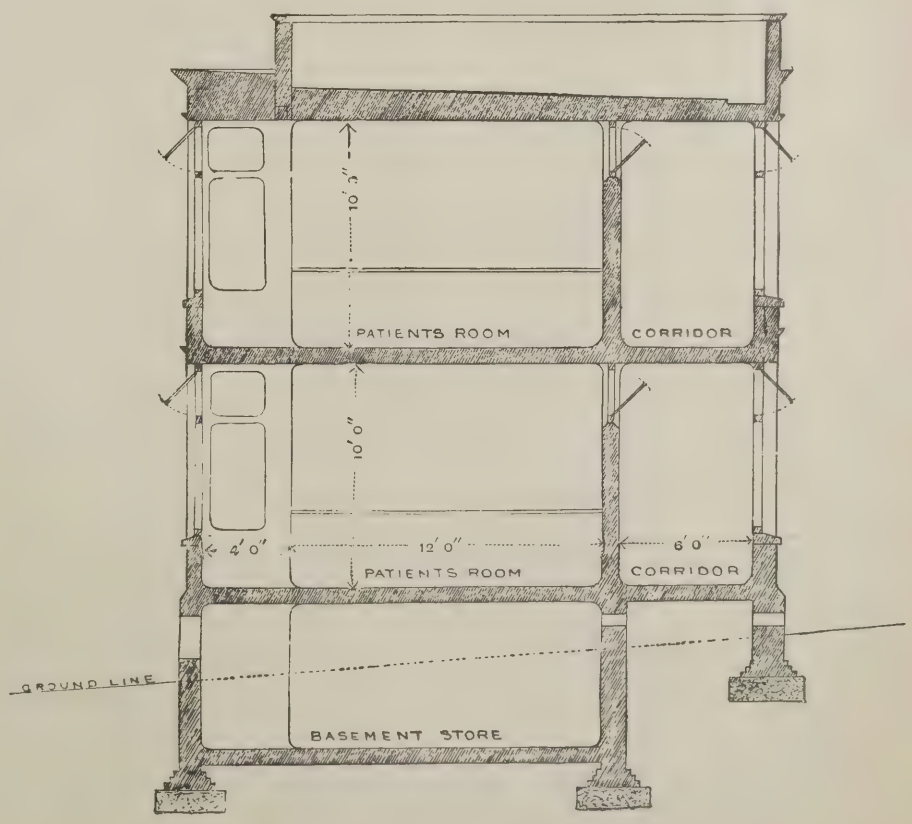
The authors point out it has been found by experience that a sanatorium for consumptives can only be efficiently flushed with air when the rooms are set in a single row, with a corridor behind—an arrangement clearly shown by the section on this page. The buildings should not be more than two storeys high. It is recommended that all floors should be constructed of steel girders laid on felt and filled in with concrete, internal partitions being of cement. The roofs are recommended to be flat and asphalted, "as roofs of this kind avoid the usual dust-collecting space between the slates and ceiling"; but we should rather take exception to this, for in a country like our own, with so much rain and snow, a pitched roof is the only logical one. Damp-courses of slate and cement are recommended; but asphalt is far better. Floors should be of teak laid on cement, and the walls are recommended to be tiled to a height of 3ft. 6in. and oil-painted (or papered with washable paper) above. A zinc ceiling is recommended, but we think its joints would harbour more dust than a well-plastered ceiling. Numerous other details are dealt with which we cannot now mention, but though opinions may differ in regard to some of them—as, for example, that urinals are "filthy contrivances at best"—the general arrangements are admirable, and the book is consequently one which should be read by all architects interested in this most important subject.

"The Prize Essay on the Erection of a Sanatorium for the Treatment of Tuberculosis in England, together with a preface by the chairman of His Majesty's Advisory Committee, a number of appendices, illustrative plans and a bibliography," by Arthur Latham, M.A., M.D. Oxon., M.A. Cantab.; in association with A. William West, architect, hon. deputy treasurer of St. George's Hospital. London: Baillière, Tindall & Cox, 8, Henrietta Street, W.C. Price 5s. nett.

The Restoration of St. Etheldreda's, Ely Place, London, which has been going on for some months past, both in the interior of the church and the crypt, as well as on the repair of the external walls of the structure, has now been completed.

Law Cases.

Arbitration: A Scotch Case.—Judgment was recently given in the case of the *Corporation of Edinburgh* v. *Lownie and Ormiston* (the former a builder and the latter a surveyor of Edinburgh). In 1897 the plaintiffs made a contract with the defendant for the masonwork of the Colinton Fever Hospital. By this contract all disputes were referred to W. W. Robertson, of H.M. Board of Works, Edinburgh, failing whom to the defendant Ormiston. In May, 1898, a question arose under the contract. Mr. Robertson declined to accept the office of arbiter, but Mr. Ormiston did so, and disposed of the question which was then raised. In November, 1898, Mr. Ormiston was elected Dean of Guild of Edinburgh, and thereby became *ex officio* a member of the Town Council. He continued to be Dean of Guild until November, 1902. In July, 1902, a question arose between the plaintiffs and defendant in regard to a claim which the latter made for extra work, and Lownie formally called upon Mr. Ormiston to act as arbiter in settling the dispute. Mr Ormiston appointed parties to meet him to arrange procedure, and appointed Lownie to lodge his claim. The plaintiffs objected to Mr. Ormiston acting as arbiter on the ground that he was disqualified by being Dean of Guild and thereby a member of the Town Council, and ultimately they brought the present action.—Lord Low in the Scottish Court of Session granted interdict, and found Lownie liable. He said he was of opinion that so long as Mr. Ormiston was Dean of Guild he was disqualified, because by being a member of the Town Council he was one of the parties. His Lordship did not imagine that there would be any danger of Mr. Ormiston consciously and intentionally favouring either the one side or the other. The true ground of objection seemed to him to be that he would not approach the question with an entirely open mind, but that his judgment might unconsciously be affected by what occurred when he was Dean of Guild. His Lordship thought that was a good objection, and he was therefore of opinion that the plaintiffs were not bound to accept Mr. Ormiston as arbiter.



BLOCK FOR THIRTY-SIX PATIENTS: SECTION.

Keystones.

The new 6-cent Guatemala Stamp has a representation of the Palace of Minerva.

The Egyptian Hall, which is to be pulled down, was built in 1812 for a natural history museum.

A new Isolation Hospital for the Hereford Rural District is about to be erected from designs by Mr. E. G. Davies, M.S.A., of Hereford.

A new Lecture Hall in Ipswich has been erected in Tavern Street from designs by Messrs. Eade & Johns. Messrs. Parkington & Son were the builders.

The Emperor William, who at his estate of Gadinen possesses brick kilns at which he recently made a brick in person, is to be offered the title and diploma of an Honorary Master Bricklayer by the Bricklayers' Union.

Cretan Exhibition. — Arrangements have been made by which the exhibition at the Royal Academy of casts, plans and photographs from the Palace of Knossos, Crete, will remain open until the close of the Old Masters Exhibition on March 14th. According to the original arrangement the Cretan Room was to have been closed on January 31st.

The Bronze Statue of James II., which was taken from Whitehall in June, was removed last week by the Office of Works and the pedestal demolished. The statue after being cleaned will be remounted in the grounds of Hampton Court. The League of St. Germain have lodged a protest against the removal.

The old Parish Church, Ipstones, Staffs, was recently struck by lightning. One of the pinnacles was destroyed, while the vane was struck and hurled with great violence into the churchyard. The masonry of the tower was also destroyed. The current seems to have travelled the entire length of the building and to have expended itself in a drain at the east end, some of which was hurled far into the air.

The new Offices in Fleet Street by Mr. John Belcher, A.R.A., are now finished. The site of the new building is situate at the corner of St. Bride's Avenue and was purchased for £15,500 from the City Corporation. The building is five storeys high and the rooms of the first floor are lighted by bay windows. Granite blocks from the De Lank quarries, Cornwall, form the outer walls of the lower storeys. Messrs. J. Simpson & Sons were the contractors. The total cost of the building has been £25,000.

The British Museum: Removal of Papers to New Building at Hendon.—Lord Peel's British Museum Act empowers the Museum trustees, with the consent of the Treasury, to remove to a building now being erected at Hendon, and there store "any newspapers and other printed matter which appear to them to be rarely required for public use." About five acres of land have been acquired for the purpose of the Act, and the new building is expected to be completed before the end of the present year.

Leeds and Yorkshire Architectural Society.—The Green Book of this Society has just been issued. The construction prize of three guineas is this year for a shop front 20ft. wide; the essay prize of two guineas, for "The difficulties of the architectural student and how they can be best overcome"; and the design prizes of three guineas and one guinea for a small mission church. The Green Book includes a prospectus of the classes in architecture conducted by the Society, Mr. Butler Wilson's presidential address, and the report of the council for the year ending May, 1902. The statement of the account shows a balance in hand of £96.

St. James's Hall is to be handed over to the American syndicate in July for conversion into a restaurant and hotel.

The Willesden Paper and Canvas Works, Ltd., of Willesden Junction, N.W., have just issued a handy block calendar for 1903.

"The Local Government Annual" for 1903 has just been issued. The book is sold at 1s. 6d. It is published at 27A, Farringdon Street, E.C.

The Louisiana Exposition.—The United States Mint is striking 250,000 special coins to commemorate the centenary of the purchase of Louisana from the French in 1803, and as a souvenir of the Universal Exposition St. Louis, 1804.

Harrogate Town Hall Scheme Dropped.—At last week's meeting of the Harrogate Town Council it was formally decided not to proceed with the town hall scheme at present. It was, however, resolved to pay the architect, Mr. Hare, his premium of £150.

To Complete the Repairs of the Doge's Palace, Venice, it will probably be necessary to place beams across the canal over which the Bridge of Sighs is built, the beams resting on the wall of the prisons, to support the portion of the leaning wall fronting the canal.

The King's Theatre, Hammersmith.—This new theatre occupies a commanding position in the Hammersmith Road, at the corner of Rowan Road; it has a frontage of 85ft. to the former and covers an area of about 15,000ft. The architect was Mr. W. G. R. Sprague.

A new Glasgow Warehouse.—Plans have just been passed by the Glasgow Dean of Guild Court for the extension of Messrs. Millar & Lang's Christmas Card Manufactory, Pollokshields, Glasgow. Messrs. John Gordon & D. Bennet Dobson are the architects of the building, which is expected to cost about £16,000.

Mr. Thomas Walter Francis Newton, of the firm of Newton & Cheatle, architects, Newhall Street, Birmingham, died last week in his forty-first year. He was educated at Taunton Independent College, and was articled to Messrs. Osborne & Reading, of Birmingham. He afterwards started in practice for himself, and upwards of twelve years ago entered into partnership with Mr. Cheatle.

"Style and Mannerism."—In his address at the Royal Academy last week Mr. Val Prinsep selected two artists, Phidias and Michael Angelo, as typical masters of style. In England Flaxman was the only stylist of his time, and after him there was none until Leighton appeared. Leighton would have excelled as a stylist had he contented himself with form alone, but his fastidiousness compelled him to try in addition for colour and other things.

The Richmond Hill View.—At the Richmond Town Council last week a recommendation to refuse to join with the London County Council in taking action against Sir Whittaker Ellis to enforce his alleged promise to restrict building over his land in the view from Richmond Hill met with severe condemnation from many members. An amendment to return the recommendation to the committee was carried by 19 votes to 11.

Auction of Newgate Relics.—On February 4th next will take place the sale of historic relics of the old Newgate Gaol, including the fittings of the chapel and governor's house, the principal front entrance and other doors, with original locks and fastenings, solicitors' and prisoners' interview boxes, the toll-bell and frame with date 1773 and inscription, an old cast-lead lectern, 1784, 120 curious copper bowls, iron gates and grilles, and 150 cell doors.

Society for the Encouragement of the Fine Arts.—The annual report for the past year states that the financial position of this Society is better than it was during the previous year, while as regards the membership twenty-five were elected in 1902 as compared with twelve in 1901. The removal from Conduit Street to the galleries of the Royal British Artists is a great advantage to the Society. Among the lectures for the forthcoming session is one on "Ruskin's Bible of Amiens" by Mr. H Beaumont.

The National Trust for Places of Historic Interest or National Beauty has completed the purchase of Kymin Hall, Monmouth, for which it has been appealing to the public for funds during the last three months. The property consists of about 9½ acres of land, on the summit of the hill, together with a Naval Temple or Pavilion, which was erected there at the commencement of the last century as a memorial of our great naval heroes. The Kymin is 800ft. above sea-level, and affords magnificent views over the valley of the Wye and of the distant Welsh mountains, the panorama unfolded comprising an expanse of nine counties.

The Wellington Monument in St. Paul's Cathedral, as already announced, is to be completed by the equestrian group of which Alfred Stevens left a rough model. Mr. John Tweed is the sculptor selected, and he is now engaged on the work. Sir Edward Poynter thinks it unfortunate that the Dean and Chapter should have adopted without wider enquiry the conclusions of the committee nominated by the subscribers who offered to provide the necessary funds, one reason being that the present Government, if they had not actually decided on finding the money, have so far given the proposal favourable consideration as to allow the First Commissioner of Works to include £2,000 for the purpose in his estimate for the coming financial year.

Coming Events.

Wednesday, Jan. 21.

RUSKIN SOCIETY OF BIRMINGHAM.—Prof. C. H. Harford on "The Gothic Revival and its place among Nineteenth-Century Ideals," 7.45 p.m.

INSTITUTION OF CIVIL ENGINEERS.—Students' visit to the works of Messrs. Yarrow & Co., Poplar, at 2.30 p.m.

SOCIETY OF ARTS.—Mr. A. Sonnenschein on "The Metric System."

CHEMICAL SOCIETY.—Meeting at 5.30 p.m.

EDINBURGH ARCHITECTURAL ASSOCIATION.—Mr. J. A. Gotch on "The Homes of Queen Elizabeth's Courtiers," 8 p.m.

NORTHERN ARCHITECTURAL ASSOCIATION.—Students' Evening.

ARCHÆOLOGICAL ASSOCIATION.—Meeting at 8 p.m.

BUILDERS' FOREMEN AND CLERK OF WORKS' INSTITUTION.—Annual meeting at 8 p.m.

Thursday, Jan. 22.

SOCIETY OF ANTIQUARIES OF LONDON.—Meeting at 8.30 p.m.

SOCIETY OF ARCHITECTS.—Mr. H. H. Richardson on "The Legal Rights and Liabilities of Architects and Surveyors," 8 p.m.

INSTITUTION OF ELECTRICAL ENGINEERS.—Discussion on the metric system, 8 p.m.

Friday, Jan. 23.

GLASGOW AND WEST OF SCOTLAND TECHNICAL COLLEGE ARCHITECTURAL CRAFTSMEN'S SOCIETY.—Mr. James A. Ferguson on "Ironmongery," 8 p.m.

ARCHITECTURAL ASSOCIATION.—Mr. J. Dudley Forsyth on "The Attitude of the Young Architect towards the Crafts," 7.30 p.m.

PHYSICAL SOCIETY.—Mr. W. H. Derriman on "The Oscillating Table for Determining Moments of Inertia." Prof. L. R. Wilberforce on "Note on an Elementary Treatment of Conducting Networks." Mr. G. W. Walker on "The Theory of the Quadrant Electrometer," 5 p.m.

BIRMINGHAM ARCHITECTURAL ASSOCIATION.—Mr. A. T. Cooper on "The Application of Electric Light to Buildings."

Saturday, Jan. 24.

GLASGOW AND WEST OF SCOTLAND TECHNICAL COLLEGE SCIENTIFIC SOCIETY.—Mr. Daniel Burns, M.I.M.E., on "Application of Electricity to Mining," 7.30 p.m.

THE CRAFT SCHOOL (137, Globe Road, Bethnal Green, E.).—Mr. E. Cooke on "The Elements of Design," 8.30 p.m.

Monday, Jan. 26.

SURVEYORS' INSTITUTION.—Discussion on Mr. H. T. Scoble's paper on "Rural Drainage and Sewage-disposal."

Complete List of Contracts Open.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDERS MAY BE OBTAINED.
	BUILDING:		
Jan. 22	Camborne, Cornwall—Offices and Fire Station	Urban District Council	S. Hill, Architect, Redruth.
" 22	Middleton, Lancs—Post Office		Stones & Stones, 10 Richmond Terrace, Blackburn.
" 22	Stanley, Durham—Two Houses, Shop, Stables, &c.		J. Calvert, High Street, Stanley.
" 22	Dundee—Retorts, &c.	Gas Commissioners	Engineer, Gasworks, Dundee.
" 22	Salford—Firebricks, &c.	Gas Committee	Gas Engineer, Gas Offices, Bloom Street, Salford.
" 23	Harlyn Bay, Cornwall—Residence	C. G. Lamb	E. Wise, Architect, Launceston.
" 24	Burgh, Aylsham, Norfolk—Church Restoration	Guardians	J. B. Pearce, 15 Upper King Street, Norwich.
" 24	Downpatrick—Alterations to Infirmary		Master, Workhouse, Downpatrick.
" 24	Mountain Ash, Wales—Steam Laundry	Sanitary Steam Laundry Co., Ltd.	Morgan & Elford, Architects, Mountain Ash.
" 24	Blackburn—Retorts, Firebricks, &c.	Gas Committee	S. R. Ogden, Engineer, Municipal Offices, Blackburn.
" 24	Birmingham—Cement, Bricks, &c.	Public Works Committee	City Surveyor, Council House, Birmingham.
" 24	Edinburgh—School	School Board	Mr. Carfrae, 3 Queen Street, Edinburgh.
" 24	Leeds—Retort Houses	Gas Committee	R. H. Townsley, Gas Offices, Municipal Buildings, Leeds.
" 24	Sunderland—Church and Schools		J. Potts & Son, 57 John Street, Sunderland.
" 24	Birmingham—Bricks	Public Works Committee	Storekeeper, Lamp Department, Park Street, Birmingham.
" 24	Langley Park, near Durham—Workmen's Club	Committee	F. H. Livesay, Architect and Surveyor, Bishop Auckland.
" 25	Onllwyn, Wales—Alterations, &c.	Dylais Higher School Board	J. C. Rees, St. Thomas's Chambers, Neath.
" 26	Walthamstow—School, &c.	School Board	H. Prosser, Architect, School Board Offices, Walthamstow.
" 26	London, S.W.—Convenience	Borough Council	Surveyor's Office, 215 High Road, S.W.
" 26	Halifax—Five Houses		R. Horsfall & Son, 22A Commercial Street, Halifax.
" 26	Hill End, near St. Albans—Stable and Coach House	Asylum Visiting Committee	G. T. Hine, 35 Parliament Street, Westminster.
" 26	Newquay, Cardigan—Lifeboat House	Royal National Lifeboat Institutn.	D. Rees, Quay Stores, Newquay, Llandyssil.
" 26	London, S.W.—Cement, Lime, Bricks, &c.	Wandsworth Borough Council	H. G. Hills, Town Clerk, Council House, Wandsworth, S.W.
" 26	Caerphilly, Wales—Extension to Hotel	Griffiths Brothers, Ltd.	Lansdowne & Griggs, Architects, Metropolitan Bank Chambers, Newport, Mon.
" 28	Naas, Ireland—Residence, &c.	Guardians	D. J. Purcell, Clerk, Naas.
" 28	London, S.W.—Lime, Cement, Carpenters' Work	Chelsea Borough Council	T. Holland, Town Clerk, Town Hall, King's Road, Chelsea, S.W.
" 30	Glacknadrummond, Ireland—Church	Committee	J. M. Robinson, 7 East Wall, Londonderry.
" 30	Birmingham—Cottages	Corporation	J. Mansergh & Sons, 5 Victoria Street, Westminster.
" 31	Bexley Heath, Kent—Adaptation	Urban District Council	W. T. Hawse, Surveyor to the Council, Bexley Heath.
" 31	Hampton, Middlesex—House		F. G. Hughes, Architect, Marling Park, Hampton-on-Thames.
" 31	Workington—Church Restoration	Executive Committee	J. Howes, 106 Harrington Road, Workington.
Feb. 2	Bromley—Two Shops		F. W. Stocker, 90 and 91 Queen Street, E.C.
" 3	New Heath, Derby—Schools	Ault Hucknall School Board	Rollinson & Son, 13 Corporation Street, Chesterfield.
" 4	London, S.E.—85 Houses	Camberwell Borough Council	W. Oxtoby, Borough Engineer, Town Hall, Camberwell.
" 6	Cape Town—Locks		Controller of Stores, General Post Office, Cape Town.
" 6	The Needles, Isle of Wight—Coast Guard Buildings		Superintending Engineer, Portsmouth Dockyard.
" 9	Walsall—School, &c.	School Board	Bailey & McConnal, Bridge Street, Walsall.
	ENGINEERING:		
Jan. 22	Ipswich—River Work, &c.	Corporation	W. Bantoft, Town Clerk, Town Hall, Ipswich.
" 22	Dundee—Electricity Meters	Gas Commissioners	W. H. Tittensor, Dudhope Crescent Road, Dundee.
" 22	Aston Manor—Rebuilding Bridge	Urban District Council	G. H. Jack, Engineer, Council House, Aston Manor.
" 22	Manchester—Steel Lock Gates	Ship Canal Company	W. H. Hunter, 41 Spring Gardens, Manchester.
" 23	Ipswich—Rolling Stock	Corporation	W. Bantoft, Town Clerk, Town Hall, Ipswich.
" 23	Earlestown, Lancs—Main-laying	Newton-in-Makerfield U.D.C.	C. Cole, Clerk, Town Hall, Earlestown.
" 23	Uckfield, Sussex—Laundry Machinery	Guardians	F. Holman, Clerk, Lewes.
" 23	Atherton, Lancs—Switchboard, &c.	Urban District Council	D. Schofield, Town Hall, Atherton.
" 23	Doncaster—Boiler, &c.	Corporation	W. Wyld, Electricity Works, Grey Friars Road, Doncaster.
" 23	Ipswich—Rolling Stock	Corporation	W. Bantoft, Town Clerk, Town Hall, Ipswich.
" 24	Cleckheaton—Motor Booster	Urban District Council	J. Armitage, Clerk, Town Hall, Cleckheaton.
" 24	Brentwood, Essex—Boring	Billericay R.D.C.	Merryweather & Sons, Ltd., Greenwich Road, London, S.E.
" 24	Dosthill, near Tamworth—Excavations, &c.	Granite Quarry Co., Ltd.	Company's Registered Office, Dosthill, near Tamworth.
" 24	Largo, Scotland—Water-well		H. Bruce, 67 Crossgate, Cupar, Fife.
" 24	Burnham-on-Crouch—Lighting	Urban District Council	E Dilliway, Clerk, Burnham-on-Crouch.
" 24	Scrabster, Caithness, Scotland—Harbour Extension	Harbour Trustees	J. Barron, 1 Bonaccord Street, Aberdeen.
" 26	Aberdeen—Railway Widening	Caledonian Railway Co.	Company's Engineer, Buchanan Street Station, Glasgow.
" 26	Bury, Lancs—Accumulators	Electricity Committee	S. J. Watson, Engineer, Electricity Works, Bury.
" 26	Newport, Mon.—Telephones, Street Pillars, &c.	Electric Light Tramways Com.	H. C. Bishop, Town Hall, Newport, Mon.
" 26	Falkirk—Waterworks	Eastern District Committee	Warren & Stuart, 94 Hope Street, Glasgow.
" 26	Withington, Lancs—Bacteria Beds	Urban District Council	A. H. Mountain, Engineer, Withington, Lancs.
" 26	Birtley, near Newcastle-on-Tyne—Railway	Iron Company	J. E. Parker, Engineer, Post Office Chambers, Newcastle-on-Tyne.
" 26	Brighton—Electric Tramways	Town Council	T. B. Holliday, Tramways Engineer, Lewes Road, Brighton.
" 26	Bulawayo, Rhodesia—Tramway	Municipal Council	Davis & Soper, 54 St. Mary Axe, E.C.
" 26	Baldonie, Scotland—Bridge		G. Gordon & Co., Civil Engineers, Inverness.
" 26	Burton Latimer, Northants—Well, &c.	Kettering R.D.C.	J. B. Everard, 6 Millstone Lane, Leicester.
" 26	Cardiff Two Masonry Skew Arch Bridges	Corporation	W. Harper, Borough Engineer, Cardiff.
" 27	West Ham—Accumulators	Town Council	J. K. Bock, Borough Electrical Engineer, Abbey Mills, West Hall.
" 27	Oldham—Exhaust Steam Oil Separator, &c.	Corporation	A. Andrew, Gas and Water Offices, Oldham.
" 28	Sydney, Australia—Arc-Lamp Pillars	Municipal Council	Preece & Cardew, 8 Queen Anne's Gate, Westminster.
" 28	London, S.W.—Engineering Works	Metropolitan Asylums Board	Engineer, Board's Offices, Embankment, E.C.
" 28	Nantwich—Water Heaters	Guardians	C. E. Davenport, Architect, Hospital Street, Nantwich.
" 28	Singapore—Graving Dock	Tanjong Pagar Dock Co., Ltd.	London Offices, 120 Fenchurch Street, E.C.
" 28	London, S.W.—Timber Jetty	Chelsea Borough Council	T. W. E. Higgens, Town Hall, King's Road, Chelsea, S.W
" 29	Cardiff—Cars	Corporation	A. Ellis, Central Offices, The Hayes, Cardiff.
" 29	Leigh, Lancs—Weighing Machine	Corporation	T. Hunter, Borough Engineer, Bank Chambers, Leigh.
" 31	Gwaun-cae-Gurwen, Wales—Ripping of Roof, &c.	New Cwmgorse Colliery Co., Ltd.	Company's Offices, Cwmgorse, Gwaun-cae-Gurwen, S.O.
" 31	Tynemouth—Batteries	Corporation	C. Turnbull, Electricity Works, Tynemouth.
" 31	Smethwick—Refuse Destructor		C. J. F. Allen, Town Hall, Smethwick.
" 31	Newcastle-on-Tyne—Launch	Improvement Commissioners	R. Urwin, Bewick Street, Newcastle-on-Tyne.
Feb. 2	Batley, Yorks—Electrical Plant	Corporation	Lacey, Clirehugh & Sillar, 78 King Street, Manchester.
" 2	Stalybridge—Electric Tramways	Electricity Board	F. Schofield, Clerk, Town Hall, Stalybridge.
" 3	London, E.—Reconstructing Bridge	London County Council	Engineer, County Hall, Spring Gardens, S.W.
" 9	Glasgow—Dredger	Clyde Navigation Trustees	G. H. Baxter, 16 Robertson Street, Glasgow.
" 10	West Ham—Electrical Equipment of Tramways	Town Council	J. K. Bock, Borough Electrical Engineer, Abbey Mills, West Ham.
" 12	London, N.E.—Electrical Plant	Hackney Borough Council	R. Hammond, 64 Victoria Street, Westminster, S.W.
" 12	Guayaquil, Ecuador, South America—Lighting	Municipal Council	Ecuadorian Consulates, 35 Chapel Walks, Liverpool.
" 26	Bulawayo, Rhodesia—Electric Tramway	Municipal Council	Davis & Soper, 54 St. Mary Axe, E.C.
" 28	Singapore—Graving Dock	Tanjong Pagar Dock Co., Ltd.	Tanjong Pagar Dock Co., Ltd., 120 Fenchurch Street.
July 1	Rangoon—Electric Supply Undertaking	Municipal Committee	Ogilvy, Gillanders & Co., 67 Cornhill, E.C.
	IRON AND STEEL:		
Jan. 23	Londonderry—Water Pipes, &c.	County Borough Council	City Surveyor, Guildhall, Londonderry.
" 24	Stockport—Rails, &c.	Tramways Committee	J. Atkinson, Borough Surveyor, Central Buildings, Stockport.
" 24	Bradford—Tram Rails	Corporation	J. H. Cox, City Engineer, Town Hall, Bradford.
" 24	Bradford—Steel Poles	Corporation	J. H. Cox, City Engineer, Town Hall, Bradford.
" 24	Leeds—Roof Principals	Gas Committee	R. H. Townsley, Gas Offices, Municipal Buildings, Leeds.
" 24	Birmingham—Iron and Steel Ware, &c.	Public Works Committee	City Surveyor, Council House, Birmingham.
" 26	London, S.W.—Iron Bars, &c.	Wandsworth Borough Council	H. G. Hills, Town Clerk, Council House, Wandsworth.
" 26	London, N.—Iron Railings, &c.	Urban District Council	G. E. Eachus, Engin. to the Council, Town Hall, Lwr. Edmonto
" 27	Hastings—Pipes	Corporation	P. H. Palmer, Waterworks Engineer, Town Hall, Hastings.
" 27	London, E.C.—Iron Fencing, Spikes, &c.	South Indian Railway Co., Ltd.	Offices, 55 Gracechurch Street, E.C.
" 28	London, S.W.—Supplies	Chelsea Borough Council	T. Holland, Town Hall, King's Road, Chelsea, S.W.
" 29	Croydon—Iron Fencing	Lunacy Visiting Committee	Borough Engineer, Town Hall, Croydon.
" 31	Glasgow—Pipes	Corporation	J. M. Gale, 45 John Street, Glasgow.
Feb. 6	Cape Town—Locks		Agent-General for Cape Colony, 100 Victoria Street, S.W.
" 9	Edinburgh—Mains	Gas Commissioner	W. R. Herring, Chief Engineer, New Street Works, Edinburgh.
	PAINTING AND PLUMBING:		
Jan. 26	Newport, Mon.—Plumbing Work	School Board	Linton & Baker, Architects, Westgate Chambers, Newport.
" 28	London, S.W.—Plumbing and Painting	Chelsea Borough Council	T. W. E. Higgens, Borough Surveyor, Town Hall, King's Road, Chelsea, S.W.
" 28	London, S.W.—Supplies	Chelsea Borough Council	T. Holland, Town Hall, King's Road, Chelsea, S.W.
Feb. 2	Manchester—Painting	Lancs and Yorks Rly. Co.	Engineer's Office, Hunt's Bank, Manchester.

Complete List of Contracts Open — *continued.*

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDERS MAY BE OBTAINED.
	ROADS AND CARTAGE:		
Jan. 22	Castleford—Improvement Works	Urban District Council	W. Green, Surveyor, Council Offices, Castleford.
,, 22	Manchester—Team Labour	Electricity Committee	F. E. Hughes, Secretary, Electricity Dept., Town Hall, Manchester
,, 22	Castleford—Relaying Causeway	Urban District Council	W. Green, Surveyor, Carlton Street Castleford.
,, 22	Ederhall, near Kelso—Approach		G. Redpath, Hedger, Highridgehall, Kelso.
,, 24	Stamford—Footpaths, &c.	Corporation	J. Richardson, 15 Barn Hill, Stamford.
,, 24	Birmingham—Materials	Public Works Committee	City Surveyor, Council House, Birmingham.
,, 25	Winchelsea and Appledore, Kent—Road Repair	War Department	Commanding Royal Engineer, R.E Office, Shorncliffe.
,, 26	London, S.W.—Materials, Hire of Steam Rollers, &c.	Wandsworth Borough Council	H. G. Hills, Town Clerk, Council House, Wandsworth, S.W.
,, 26	London, S.W.—Making-up, &c.	Wandsworth Borough Council	H. G. Hills, Town Clerk, Council House, Wandsworth, S.W.
,, 27	Caerphilly, Wales—Street Works	Urban District Council	Surveyor, Council Offices, Caerphilly.
,, 27	Capetown—Streets		Davis & Soper, 54 St. Mary Axe, London, E.C.
,, 27	West Hartlepool—Tar Paving	Corporation	J. W. Brown, Borough Engineer, West Hartlepool.
,, 27	West Ham—Making-up Streets	County Borough	F. E. Hilleary, Town Hall, West Ham, E.
,, 28	Brentwood, Essex—Laying-out Grounds	Metropolitan Asylums Board	Secretary, Board's Offices, Embankment, E.C.
,, 28	London, S.W.—Materials, &c.	Chelsea Borough Council	T. W. E. Higgens, Borough Surveyor, Town Hall, King's Road, Chelsea, S.W.
,, 28	Boston, Lincs—Materials	Holland County Council	H. C. Johnson, Clerk, Sessions House, Boston.
,, 28	Swansea—Materials and Haulage	Rural District Council	G. P. Thomas, Highway Surveyor, Fforestfach, near Swansea.
,, 28	Sale, Cheshire—Materials, &c.	Urban District Council	W. Holt, Surveyor, Council Offices, Sale.
,, 29	Gateshead—Street Works	Corporation	Borough Engineer, Town Hall, Gateshead.
,, 29	London, W.—Making-up Road	Town Council	C. Jones, Borough Engineer, Town Hall, Ealing, W.
,, 30	Hertfordshire—Granite and Slag	County Council	U. A. Smith, 41 Parliament Street, Westminster, S.W.
,, 31	Hemel Hempstead—Steam Road-Rolling and Scarifying, &c.	Corporation	W. R. Locke, Borough Surveyor, Town Hall, Hemel Hempstead.
,, 31	Littlehampton—Road Works	Urban District Council	H. Howard, Surveyor, Town Office, Littlehampton.
,, 31	Norwich—Granite	Norfolk County Council	T. H. B. Heslop, County Surveyor, Norwich.
Feb. 2	Prestwich, Lancs—Footpath	Urban District Council	Surveyor, Chester Bank, Prestwich.
,, 2	Prestwich, Lancs—Road Works	Urban District Council	Surveyor, Chester Bank, Prestwich.
,, 4	London, S.E.—Roads and Sewers		F. & W. Stocker, 90 and 91 Queen Street, E.C.
,, 10	Middlesex—Materials for Road Widening	County Council	H. T. Wakelam, Middlesex Guildhall, Westminster, S.W.
,, 11	Ormskirk, Lancs—Materials, &c.	West Lancs R.D.C.	C. Law-Green, Surveyor, Union Offices, Wigan Road, Ormskirk.
	SANITARY:		
Jan. 24	Alnwick—Laying Sanitary Pipe	Rural District Council	H. W. Walton, Council's Offices, Fenkle Street, Alnwick.
,, 24	Bacup, Lancs—Sewers, &c.	General Works Committee	Borough Surveyor, Municipal Buildings, Bacup.
,, 24	Wargrave, Berks—Sewerage Works	Wokingham R.D.C.	Hassard & Tyrrell, 1 Victoria Street, S.W.
,, 24	Birmingham—Stores and Materials	Public Works Committee	J. Price, City Surveyor, Council House, Birmingham.
,, 26	London, S.W.—Drain Testers, Disinfectants, Collection of Refuse, &c.	Wandsworth Borough Council	H. G. Hills, Town Clerk, Council House, Wandsworth, S.W.
,, 26	Falkirk—Drainage Works	Eastern District Committee	Warren & Stuart, 94 Hope Street, Glasgow.
,, 26	London, N.—Sewer, &c.	Hornsey U.D.C.	E. J. Lovegrove, Engineer, Southwood Lane, Highgate N.
,, 26	Curdworth, near Birmingham—Sewerage Works	Rural District Council	Willcox & Raikes, Union Chambers, 63 Temple Row, Birmingham.
,, 26	Minworth, near Birmingham—Sewerage Works	Rural District Council	Willcox & Raikes, Union Chambers, 63 Temple Row, Birmingham.
,, 28	Audenshaw, Lancs—Sewers	Urban District Council	J. P. Wilkinson, 47 and 48 Arcade Chambers, St. Mary's Gate, Manchester.
,, 28	London, S.W.—Scavenging, Disinfectants, &c.	Chelsea Borough Council	T. W. E. Higgens, Borough Surveyor, Town Hall, King's Road, Chelsea, S.W.
,, 28	Houghton-le-Spring, Durham—Scavenging	Rural District Council	J. G. Baty, Clerk, Houghton-le-Spring, R.S.O.
,, 29	Wirrall, Cheshire—Sewer	Rural District Council	Beloe & Priest, 13 Harrington Street, Liverpool
,, 29	Lingfield, Surrey—Sewer, &c.	Rural District Council	A. Williams & Son, 14 Victoria Street, Westminster.
Feb. 4	Burton-upon-Trent—Sewer	Corporation	G. T. Lynam, Borough Surveyor, Town Hall, Burton-on-Trent.
	TIMBER:		
Jan. 24	Birmingham—Timber	Corporation	City Surveyor's Office, Council Office, Birmingham.
,, 28	London, S.W.—Wood Blocks	Chelsea Borough Council	T. Holland, Town Hall, King's Road, Chelsea. S.W.

List of Competitions Open.

DATE OF DELIVERY.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Jan 31	Cape Town—University Buildings	£400, £200, £100.	Agent-General for the Cape of Good Hope, London.
,, 31	Hull—Town Hall Extension	£300, £200, £100.	E. Laverack, Town Clerk, Town Hall, Hull.
Feb. 10	Winchester—Recreation Ground	£75 and £25.	W. Bailey, Town Clerk, Guildhall, Winchester.
,, 13	Patras, Greece—Church	£400, £160, £80.	Committee for new Church of St. Andrew, Patras, Greece.
,, 20	Sutton Coldfield—Town Hall	£50, £30, £20.	W. A. H. Clarry, Borough Surveyor, Council House, Sutton Coldfield.
,, 28	Bridgwater—Appliances for Silt Disposal		W. T. Baker, Town Clerk, King Square, Bridgwater.
March 4	Wycombe—Town Hall, &c.	£105 and £26 5s.	T. J. Rushbrooke, 77 Easton Street, Wycombe.
,, 31	Hull—Extension of Town Hall	£300, £200, £100.	E. Laverack, Town Clerk, Town Hall, Hull.
,, 31	Castleford, Yorkshire—Public Library	£15, £10.	H. A. Broadbent, Clerk to Urban District Council, Castleford, Yorkshire.

Vacant Appointments.

[The dates given are those on which the application is to be sent in, and the name given is that of the person to apply to. In nearly every case the application has to be made on a special form, which can be obtained from the officials mentioned.]

January 22.

PENDLETON.—Chief clerk, £150 (electricity department). L. C. Evans, town clerk.

January 23.

BARNES U.D.C.—Shift engineer. J. E. Anderson, clerk.

BRAY U.D.C.—Assistant electrical engineer, £65. P. McDonnell, clerk.

DEVONPORT.—Waterworks manager, £250. A. R. Pilling, town clerk.

January 24.

LEICESTER CORPORATION.—Assistant foreman pavior, £2 5s. per week. E. G. Mawbey, engineer.

January 26.

SHEFFIELD.—Engineer (state salary required). William Terry, general manager.

CONGLETON CORPORATION.—Chief clerk, £100. E A. Plant, town clerk.

January 27.

COLCHESTER CORPORATION.—Assistant in engineer's office, £3 3s. H. Goodyear, engineer.

GOVAN BURGH.—Chief electrical engineer, £400. A. McDonald, town clerk.

PADDINGTON BOROUGH COUNCIL.—General clerk, £85; junior clerk, £40, increasing. A. W. J. Russell, town clerk.

January 28.

WALSALL BOROUGH.—Shift engineer, £2 per week. A. Wyllie, electrical engineer.

January 29.

STRETFORD U.D.C.—Engineering clerk of works (state salary required). G. H. Abrahams, clerk.

January 30.

BENARES, INDIA.—Assistant resident engineer, £320, rising; waterworks inspector, £160, rising. Chairman, Municipal Board, Benares.

RANGOON PORT TRUST.—Resident engineer, Rs.700, rising to 1,000 monthly. George Buchanan, chairman, Burma.

MALAY STATES.—Six surveyors, chief draughtsman, £360 each, free quarters. Private Secretary, Colonial Office.

January 31.

HARROGATE CORPORATION.—Works manager, state salary required, house free on works. G. W. Dixon engineer.

February 2.

LONDON COUNTY COUNCIL.—Assistant in chief engineer's department, £500. G. L. Gomme, clerk.

WOOLWICH BOROUGH.—Architectural assistant £182. T. B. Bryceson, town clerk.

February 15.

BOMBAY CITY.—Executive engineer, Rs.1,200 per month. M. N. Waded, municipal secretary.

February 16.

MANCHESTER OWENS COLLEGE.—Professor of Architecture, £600. Registrar, Owens College.

Edinburgh Architectural Association.—The associate section held its third ordinary meeting of the session in the rooms, 117, George Street, last week, Mr. J. Douglas Trail in the chair. Mr. Ramsay Traquair, A.R.I.B.A., read a paper on "Scottish Domestic Detail." He discussed the importance of detail in relation to the house, our attitude towards architecture, the method of study of old work and the application of such study. The address was illustrated by a splendid series of photographs.

Current Market Prices.

FORAGE.

		£	s.	d.	£	s.	d.
Beans	per qr.	1	9	9	1	12	3
Clover, best	per load	4	10	0	5	0	0
Hay, best	do.	3	15	0	5	10	0
Sainfoin mixture	do.	3	15	0	4	5	0
Straw	do.	1	8	0	1	18	0

OILS AND PAINTS.

Castor Oil, French	per cwt.	1	3	11		—	
Colza Oil, English	do.	1	4	6		—	
Copperas	per ton	2	0	0		—	
Lard Oil	per cwt.	2	13	0	2	14	0
Lead, white, ground, carbonate	do.	1	4	10		—	
Do. red	do.	1	0	4½		—	
Linseed Oil, barrels	do.	1	4	3		—	
Petroleum, American	per gal.	0	0	5½	0	0	5⅝
Do. Russian	do.	0	0	4¼	0	0	4⅜
Pitch	per barrel	0	7	0		—	
Shellac, orange	per cwt.	6	3	0	6	4	0
Soda, crystals	per ton	3	2	6	3	5	0
Tallow, Home Melt	per cwt.	1	10	9		—	
Tar, Stockholm	per barrel	1	1	6		—	
Turpentine	per cwt.	2	2	0		—	

METALS.

Copper, sheet, strong	per ton	67	0	0		—	
Iron, Staffs., bar	do.	6	5	0	8	10	0
Do. Galvanised Corrugated sheet	do.	11	5	0	11	10	0
Lead, pig, Soft Foreign	do	11	7	6	11	8	9
Do. do. English common brands	do.	11	10	0	11	12	6
Do. sheet, English 3lb. per sq. ft. and upwards	do.	13	10	0		—	
Do. pipe	do.	14	0	0		—	
Nails, cut clasp, 3in. to 6in.	per ton	9	5	0		—	
Do. floor brads	do.	9	0	0		—	
Steel, Staffs., Girders and Angles	do.	5	15	0	6	5	0
Do. do. Mild bars	do.	6	10	0	7	0	0
Tin, Foreign	do.	128	17	6	129	7	6
Do. English ingots	do.	130	0	0		—	
Zinc, sheets, Silesian	do	24	0	0		—	
Do. do. Vieille Montaigne	do.	24	0	0		—	
Do. Spelter	do.	20	2	6	20	5	0

TIMBER.

SOFT WOODS.

Fir, Dantzic and Memel	per load	1	13	0	3	0	0
Pine, Quebec, Yellow	do.	5	5	0	6	5	0
Do. Pitch	do.	3	0	0	3	4	0
Laths, log, Dantzic	per fath.	4	10	0	5	10	0
Do. Petersburg	do.	8	10	0		—	
Deals, Archangel 2nd & 1st	per P.Std.	12	10	0	14	0	0
Do. do. 4th & 3rd	do.	10	5	0	12	15	0
Do. do. unsorted	do.	5	12	6	6	10	0
Do. Riga	do.	6	15	0	12	10	0
Do. Petersburg 1st Yellow	do.	16	10	0		—	
Deals, Petersburg 2nd Yell.	per P. Std.	9	0	0	17	5	0
Do. do. White	do.	7	10	0	11	10	0
Do. Swedish	do.	5	15	0	16	15	0
Do. White Sea	do.	12	15	0	15	5	0
Do. Quebec Pine, 1st	do.	17	15	0	18	5	0
Do. do. 2nd	do.	12	0	0	18	5	0
Do. do. 3rd &c.	do.	8	10	0	13	15	0
Do. Canadian Spruce 1st	do.		—		11	10	0
Do. do. 3rd & 2nd	do.	9	12	6	10	5	0
Do. New Brunswick	do.	7	15	0	8	0	0
Battens, all kinds	Per P. Std.	6	10	0	12	5	0
Flooring Boards 1in. prepared, 1st	per square	0	10	9	0	11	0
Do. 2nd	do	0	9	0	0	10	6
Do. 3rd &c.	do	0	8	3	0	9	6

HARD WOODS.

Ash, Quebec	per load	3	12	6		—	
Birch, Quebec	do.	3	12	6	3	17	6
Box, Turkey	per ton	15	0	0	20	0	0
Cedar, Cuba	per ft. sup.	0	0	3¾	0	0	5
Do. Honduras	do.	0	0	4 9/32		—	
Do. Tobasco	do.	0	0	4 13/32		—	
Elm, Quebec	per load	4	0	0	5	2	6
Mahogany, Average Price for Cargo, Honduras	per ft. sup.	0	0	5 3/16		—	
Do. African	do.	0	0	4 13/16		—	
Do. St. Domingo	do.	0	0	3¾	0	0	6
Do. Tobasco	do.	0	0	4 21/32		—	
Do. Cuba	do.	0	0	4¼	0	0	8 7/20
Oak, Dantzic and Memel	per load	3	5	0	3	15	0
Do. Quebec	do.	6	5	0	6	10	0
Teak, Rangoon, planks	do.	16	0	0	17	10	0
Wainscot, Riga (Baulk)	do.	3	15	0	5	15	0
Walnut, Odessa Crown	do.	3	15	0	5	15	0
Do. American	per ft. cube	0	2	0		—	

Tenders.

Information from accredited sources should be sent to "The Editor" at latest by noon on Monday if intended for publication in the following Wednesday's issue. Results of Tenders cannot be accepted unless they contain the name of the Architect or Surveyor for the work.

Addressed postcards on which lists of tenders may be stated will be sent post free on application to the Manager, BUILDERS' JOURNAL, 9, *East Harding Street, E.C.*

Aberystwyth.—For the erection of new business premises in Alexandra Road and new stables to Commercial Hotel, for Messrs. David Roberts & Sons. Mr. T. E. Morgan, architect, Aberystwyth:—

Humphreys & Williams	£1,399 0
Rowlands & Jones	1,382 10
Owen Brothers	1,337 0
Edward Brothers	1,281 0
E. E. Jenkins	1,275 0
W. Jones & Son	1,180 0
Jones & Lewis*	1,117 0

* Accepted. [All of Aberystwyth.]

Aberystwyth.—For the erection of new premises at the corner of Alexandra Road and Terrace Road (opposite the railway station). Mr. J. Arthur Jones, architect, 7 Queen's Terrace Aberystwyth:—

L. Bearne	£1,938	Hopkins & Co...	£1,595
W. Jones	1,950	D. Williams	1,489
J. P. Lewis	1,871	Humphreys & Williams	1,400
E. Jenkins	1,650	Edwards Brothers*	1,397
E. Owen	1,615		
Jones & Lewis	1,610		

* Accepted. [All of Aberystwyth.]

Barford (Warwick).—For alterations and additions at Barford Hill, near Warwick, for Mr. C. A. Smith-Ryland, J.P. Mr. C. M. C. Armstrong, architect, 5 High Street, Warwick:—

J. H. Casmore, Warwick	£1,139
W. & J. Webb, Birmingham	900
R. Bowen, Leamington	895
G. F. Smith & Sons,* Leamington	890

* Accepted.

Bedminster.—For the erection of the Raymond Hotel, Victoria Park, Bedminster, for Messrs. R. W. Miller & Co., Ltd. Messrs. P. Munroe & Son, architects:—

W. Cowlin & Son	£2,048 0
C. A. Hayes	1,940 0
A. J. Beavan	1,850 0
Perkins	1,798 0
Chown	1,705 0
Lane	1,738 0
E. Hatherley	1,697 0
Foster	1,674 10
A. E. Denby & Co.,* Bristol	1,656 10

* Accepted.

Brighton.—For the construction of the permanent way of the tramroads in London Road, St. Peter's Place, Work Place, Pavilion Parade, and Old Steine, &c., including the bonding and all contingent works, and paving with wood the whole of the area of such roads, including the tramway tracks, for the Town Council, Mr. Francis J. C. May, M.I.C.E., borough engineer:—

If the shingle or brick rubble is provided by the Corporation.

E. Nuttall, Manchester	£34,409 17 7
R. W. Blackwell & Co., Ltd., London	33,189 14 6
A. Graham & Sons, Huddersfield	32,022 11 3
J. A. Ewart, Westminster	30,313 0 2
J. Brunton, Hull	29,192 9 11
Dick, Kerr & Co., Ltd., London	28,595 4 10
J. G. White & Co., London	27,348 17 5
Acme Wood Flooring Co., Ltd., London	26,147 12 4
W. Griffiths & Co., Ltd., London	25,937 2 3
E. Alcott,* Westminster	24,983 19 9
W. L. Meredith, Whitecroft, Gloucestershire	14,467 8 8

* Accepted.

If the shingle is provided by the contractor.

E. Nuttall	£35,163 3 11
R. W. Blackwell & Co., Ltd.	34,659 2 0
A. Graham & Sons	32,954 11 9
J. A. Ewart	32,599 7 10
J. Brunton	30,183 2 7
Dick, Kerr & Co., Ltd.	29,407 4 0
J. G. White & Co.	28,587 3 3
Acme Wood Flooring Co., Ltd.	26,893 12 4
W. Griffiths & Co., Ltd.	26,708 16 0
E. Alcott	26,487 12 8
W. L. Meredith	15,220 4 5

Cardiff.—For the erection of new stables for Councillor Arthur Sessions. Mr. Edgar G. C. Down, A.R.I.B.A., architect, 31 High Street, Cardiff. Quantities by architect:—

W. Thomas & Co.	£449	E. R. Evans & Bros...	£345
Cox & Barde	365	W. T. Morgan	332
Knox & Wells	357	W. Symonds & Co.*	322

* Accepted.

Coplow Hill (Warwick).—Accepted for alterations and additions to the tea-house at Coplow Hill, near Warwick, for Mrs. Smith-Ryland. Mr. C. M. C. Armstrong, architect, 5 High Street, Warwick:—

Albert E. Sheasby, Barford £345

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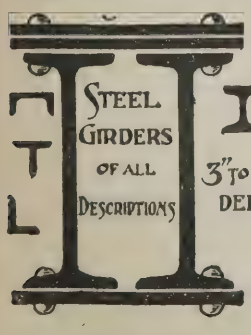
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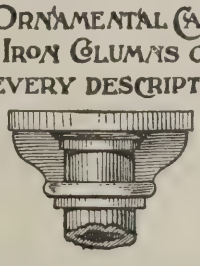
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TENDERS—*cont.*

Carlton (Nottinghamshire).—For the erection and completion of New Carlton and Gedling Wesleyan school chapel, in Gedling Road, Carlton. Mr. W. H. Higginbottom, architect, King John's Chambers, Nottingham. Quantities by the architect:—

G. Caulton	£2,660	Deabill & Co.	£2,370
Pask & Thorpe	2,524	G. T. Lovett	2,335
Thompson & Sons	2,464	Cooper & Son	2,320
A. Alcock	2,447	Oliver & Son	2,310
Marshall & Coppin	2,432	T. H. Harper	2,290
G. A. Pillatt	2,399	J. Lewin	2,218
Herring & Sons	2,390	T. Barlow	2,200
Hutchinson & Son	2,376	G. T. Tegerdine*	2,098

* Accepted.

Caversham (Oxon).—For the construction of about 940 yards of 9in. stoneware pipe sewers, together with manholes, lampholes, and other works in connection therewith, in Kidmore Road and Oakley Road, Caversham, for the Caversham Urban District Council. Mr. S. Percy Andrews, surveyor, 22 Prospect Place, Caversham:—

Kidmore Road.

A. G. Osenton, Tilehurst	£1,454 11 0
H. Hill, Reading	1,060 2 3
W. Reeves, Reading	1,019 18 3
W. H. Hinkins, Royston	981 9 0
F. Free & Sons, Maidenhead	974 18 4
T. Free & Sons, Bristol	852 7 8
Collier & Catley,* Reading	840 19 5

Oakley Road.

A. G. Osenton	£483 5 10
W. H. Hinkins	318 12 3
W. Reeves	316 3 3
F. Free & Sons	311 5 10
H. Hill	306 16 0
T. Free & Sons	265 14 8
Collier & Catley	260 7 7

* Accepted.

Cromer.—For the erection of electric-light buildings, for the Urban District Council. Messrs. O'Gorman & Cozens-Hardy, engineers, Victoria Street, Wesminster:—

F. Minter, Westminster	£3,590 0 0
R. Chapman, Hanworth	3,410 0 0
T. Blyth, Foulsham	3,350 0 0
W. Porter, Cromer	3,329 7 0
J. W. Neale, Baconsthorpe	3,245 15 6
J. Youngs & Son, Norwich	3,239 8 5
George Elsey, Lowestoft	3,200 0 0
H. Bullen, Cromer	3,147 0 0
S. & F. Smith, Great Yarmouth	3,066 0 0
H. W. Barnes, King's Lynn	2,903 0 0
G. A. Limes, Runton	2,900 0 0
Girling & Smith, Cromer*	2,885 0 0

* Accepted.

Devonport.—For the erection of lavatories, &c., at the Church of St. John the Baptist, for the Vicar (Rev. E. G. Cocks) and Churchwardens. Mr Edgar M. Leest, M.S.A. architect, 14 St. Aubyn Street, Devonport:—

A. G. Heard	£138 0
G. H. Smith & Son	124 15
W. Littleton & Son*	119 10

* Accepted.

Dorking.—For carrying out North and Mid-Holmwood drainage works, for the Dorking Rural District Council. Mr. William Rapley, jun., surveyor, Clovelly, Tower Hill, Dorking:—

G. Cummins & Sons	£8,148 0 0
A. C. Soan	7,789 18 6
W. Coker	7,175 18 7
T. Free & Sons	6,760 14 5
J. & T. Binns	6,312 19 7
B. Cooke & Co.	6,220 7 4
W. Graham & Sons	6,152 13 9
J. & E. Bloomfield	5,925 0 0
C. Ford	5,826 0 0
G. G. Rayner	5,562 5 4
Streeter & Todhunter	5,509 0 0
G. R. Mann	5,323 15 7
F. W. Trimm,* Eastleigh, Hants	4,925 0 0

* Accepted.

Falmouth.—For the following works for the Tow Council: (1) Foundations for the enlargement of t Market Strand Pier, and extension of such pier for distance of 200ft. or thereabouts. (2) Enlargement existing Market Strand Pier and other improvements same. (3) Extension or widening of the Custom Hou or Town Quay:—

Contract No. 1.

Grace, Southampton	£6,655 0
Rickard & Son, Penrhyn	5,171 17
Page,* Cardiffs	4,816 4

Contract No. 2.

Hill & Lester, Plymouth	3,208 0
Carkeek, Redruth	2,834 0
Rickard & Sons	2,275 0
Page*	1,675 13

Contract No. 3.

Hill & Lester	3,598 0
Carkeek	2,992 0
Page	2,926 0
Rickard & Sons*	2,673 0

NOTE.—Work No. 1 will be carried out in ferro-concre (Hennebique's patents). Contractor to be duly-appointe licensee. Works Nos. 2 and 3 will be constructed ordinary granite work. * Accepted.

Guildford.—For sewering, levelling, paving, metallin flagging and making good the Manor Road, in the paris of Stoke-next-Guildford, for the Rural District Counc Mr. John Anstee, Guildford, surveyor:—

W. Peters & Co., Stepney, E.	£1,413 1 5
W. Norris, Farnham	1,387 14 6
B. Porter, Clapton, N.E.	1,375 0 0
Streeter & Todhunter, Godalming	1,348 19 10
G. A. Franks,* Guildford, Station Approach	1,292 1 11

* Accepted. [Surveyor's estimate, £1,546 16s. 7d.]

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King's Lynn (Norfolk).—For the erection of the West Norfolk and Lynn Hospital, King's Lynn, Norfolk (alterations to operating theatre and laundry). Mr. Herbert J. Green, architect and diocesan surveyor, 31 Castle Meadow, Norwich:—

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Renant Brothers, King's Lynn	1,333 0
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John Cracknell, Peterboro'	1,273 0
Fash, Langley & Co., King's Lynn	1,272 19
J. Medwell, King's Lynn	1,262 0
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Bardell Brothers, King's Lynn	1,235 0
J. W. Collins, Downham Market	1,218 0
W. H. Brown, King's Lynn	1,197 18
A. F. Foreman,* King's Lynn	1,186 18
Reuben Shanks, Chatteris, Cambs	1,150 0

* Accepted.

Leytonstone (Essex).—For the erection of the Norlington Road Schools, Leytonstone, E., for the Leyton School Board. Mr. William Jacques, architect, 2 Fen Court, E.C.:—

Foster Brothers, Norwood Junction	£36,744 0 0
Shelbourne & Co., Southend	34,203 7 2
S. Lintern & Co., London	33,459 0 0
Stimpson & Co., Brompton	31,770 0 0
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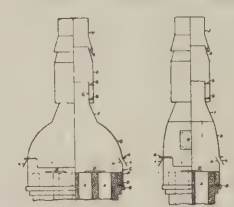
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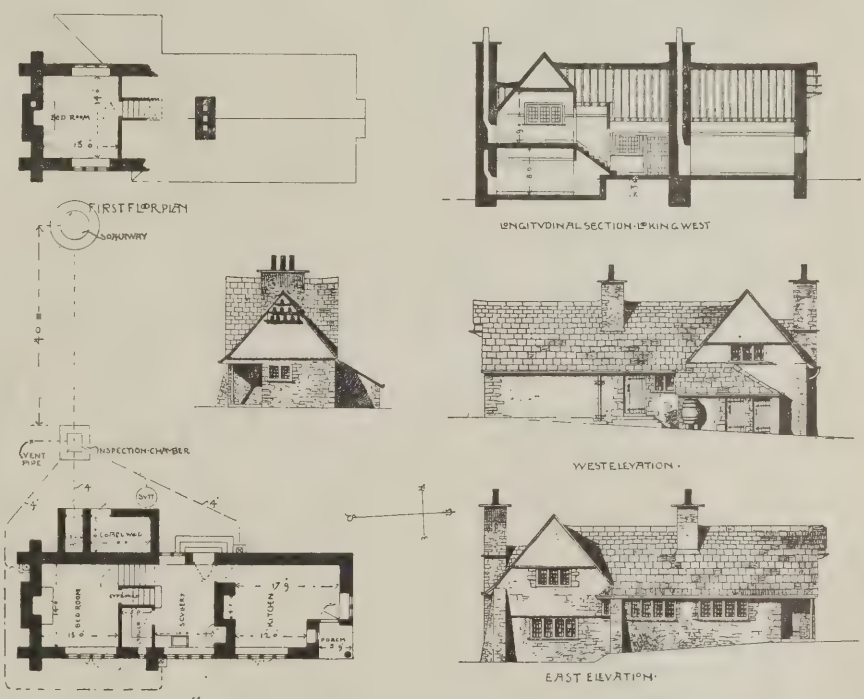
An Architectural Causerie.

The Wellington Memorial.

THERE has been a wordy war going on between the two cliques who have interested themselves in the completion of the Wellington memorial in St. Paul's Cathedral. Some of the facts have already been published in our columns, but we may briefly summarize the position. As everyone knows, Stevens's splendid memorial was intended to have an equestrian group on the top. Several attempts have been made to get that done, and Lord Leighton—who, practically at his own expense, had the memorial taken from the obscurity of one of the chapels and placed in its present position—made strenuous, though futile, efforts to obtain a Government grant for the purpose. Now, it appears, a small body of enthusiasts have found someone willing to provide the necessary funds, and have secured the permission of the Dean and Chapter for the completion of the memorial; but it should here be stated that the Dean and Chapter insisted that Stevens's design (a full-sized model exists) should be followed as strictly as possible, that the sculptor selected should be approved by them, and that a report of his proposals should be submitted and approved. This was all done in due course, and at the present time Mr. John Tweed, a rising sculptor known more especially for his South African memorial to Major Wilson and his men, is engaged on the work. So far, seemingly, so good; but at this juncture Sir Edward Poynter, Mr. Spielmann, and others of the same opinion, join in a chorus of dissent: for the arrangements mentioned were carried out in strict secrecy, and nothing public was known of them till the whole affair had been settled. Naturally, Sir Edward Poynter, who had been pressing the Government with the same object, and had been so far successful as to get £2,000 included in the estimates for the forthcoming session, is much upset. Hence the outburst in the "Times." The party that has been forestalled is very sore about the matter, and Mr. Spielmann, though he would "utter no word" against Mr. Tweed, observes that "one of our finest and most accomplished sculptors" should have been chosen to carry out the work. "I know not if the sculptor-designate has ever modelled an equestrian statue: but this I know, that even if he has gained that mastery which we know comes only with the practice and experience of years, and if, which can hardly be claimed for him, he were the equal of M. Rodin himself, under whom he has studied, he would, by the very sentiment of his art, be hopelessly unfitted to complete this work, as he is utterly at variance with the intention, spirit, and manner of the great Stevens." There is doubtless much truth in this argument, but everything depends on this actual work and not on what the sculptor has already done, and we think it is rather premature (to say the least) for Mr. Spielmann to speak of the days to come when assuredly "visitors to the Cathedral and the students of sculpture will learn the story of Stevens's masterpiece and its bungling, and, deploring it, they will repeat the names of the men responsible for the folly, just as art-vandals and iconoclasts are pointed at in Italy and elsewhere, in anger or in ridicule." Time enough for that when the statue is done. But we certainly think that Mr. Alfred Gilbert would have been a better choice than Mr. Tweed. When Mr. Spielmann began his crusade the names of those forming the small committee were not publicly known, but it has since transpired that they are the Bishop of Stepney, Lord Hardwicke, Mr. Harold Hodge, Mr. D. S. MacColl and Mr. Herbert Trench. They state that Mr. Tweed's model, when his work has been done upon it, will be tried in position before it is handed over to the bronze-founder. "Then, in our opinion, when the project is actually before the eyes of the public side by side with Stevens's models and drawings, will be the moment for useful criticism"—a remark with which we entirely agree.

The Committee further state: "It cannot be too clearly understood that Stevens's design is, in all essentials, complete; and that its general effect will in no way be altered by the work that has to be done with a view to preparing it for casting. Several broken or missing details have to be supplied, but ample authority exists for them in the original sketch-model at Kensington. In other details the indication of surface modelling is left in the rough, but sufficiently defined, and a competent sculptor will be able to get the surface into a condition congruous with the bronze of the existing groups by faithfully following existing indications. There is therefore no question of a new designer being called in or another sculptor glorified at the expense of Stevens."

It is not generally known that Stevens's design was submitted in competition and secured a sixth place; but as it was the only monument that would suit the site it was adopted—much, of course, to the chagrin of the other competitors, who had to be consoled by payments out of the fund of £20,000 intended for the work; so that in the end poor Stevens had only £6,000 at his disposal. And then when he had worked at the monument, with no friendly grace from the cathedral authorities, his equestrian group was refused by Dean Milman, who would not have the Duke or any other soldier "to come riding into the cathedral"; so that the monument remains incomplete to this day. Stevens never survived that disappointment and died of a broken heart.



THE LODGE, "BROADLEYS," WINDERMERE. C. F. A. VOYSEY, ARCHITECT.

THE TONNERE HOSPITAL.

IT is stated that the municipal council of Tonnere (Yonne) proposes to convert the chapel of the hospital in that town, founded about 1293 by Margaret of Burgundy, into a covered market.

The town of Tonnere, says Viollet-le-Duc (Dictionary of Architecture, vi. 107), already had as early as the eleventh century a public hospital, or Hôtel-Dieu, situate, according to the practice of the time, adjoining the church of Notre Dame, which served as a chapel to that institution; and there was another hospital of about the same date in the Faubourg de Bourberault, which consisted of a small chapel, an insignificant house and a garden. In 1204 Eudes III., Duke of Burgundy, founded in the same town the hospital of the Holy Ghost, but Margaret of Burgundy, sister-in-law of Saint Louis, King of Sicily, resolved to present the town of Tonnere with a magnificent hospital, and with that view purchased a site near a spring called Fontenelle, adjoining the River Armençon and the town walls. In the deed of incorporation it was provided that the poor should be received into the establishment; the convalescents were to be boarded for seven days and provided on their discharge with suitable clothing; a chapel with four altars was to be erected; the brothers and sisters, to the number of twenty, entrusted with the management of the hospital were to feed the hungry, to receive and entertain strangers and pilgrims; to clothe the needy, to visit the sick, console the prisoners and to bury the dead; the brothers and sisters were to have separate dormitories and refectories, and were not to take their meals until the inmates were served. The hospital was promptly erected, and Margaret built for herself a lodging adjoining in order to superintend the institution. On her death in 1308 the buildings, with the attached offices, had been completed some time. The only remains of this hospital is the grand hall and some outbuildings, of which illustrations are given in the Dictionary of Architecture, pp. 110, 111 and 113.

The hall is 286ft. long, 60ft. wide, and about 51ft. high from the floor to the highest part of the ceiling. On either side of this hall were ranged forty cubicles, each containing a bed, twenty on each side, with an altar in a polygonal apse at one end and a porch with a small chapel and a staircase at the opposite end. The hospital communicated with the duchess's apartments by a covered way, and there was a gallery round the hall for convenience of supervision.

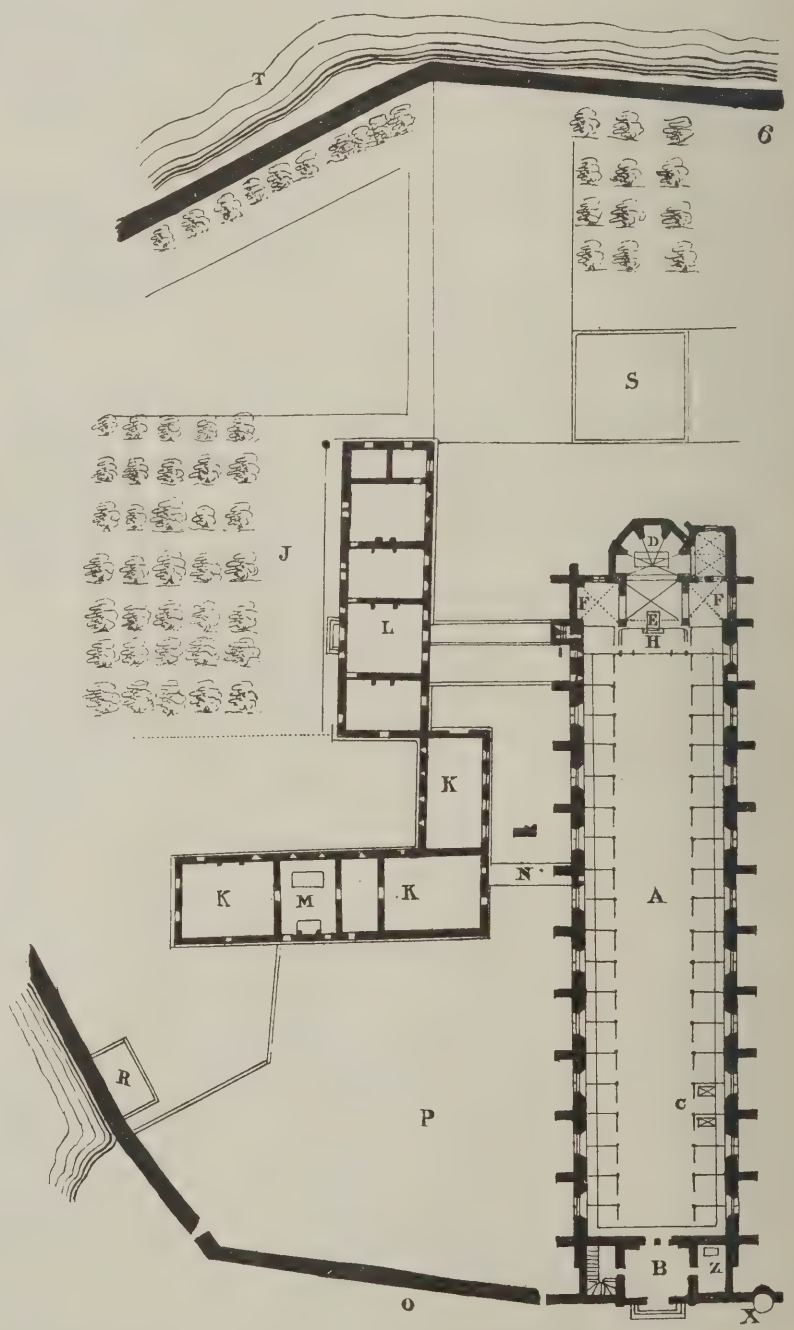
This magnificent building, which, according to Viollet-le-Duc, is almost intact, with the exception of the porch, is one of the finest examples of the domestic architecture of the close of the thirteenth century in France, but it appears, according to Viollet-le-Duc, that the town of Tonnere resolved upon its destruction more than thirty years ago, and it taxed all the energies of the Commission des Monuments Historiques to prevent its demolition.

Why did the town of Tonnere seek its removal? asks Viollet-le-Duc. It would probably be difficult to discover the reason, he replies. Why did the city of Orleans destroy its hospital, one of the most beautiful edifices of the Renaissance period? How many cities are there which have been thus despoiled, without sufficient reason, of buildings which attested their antiquity, which gave them a special interest and retained foreigners within their walls. Many persons regret, but too late, these acts of vandalism, and are surprised that travellers pass by unmoved in the midst of their new streets, without casting a glance at the columnar portico of the law courts or the front of the new hospital, which might be easily mistaken for a barrack.

Viollet-le-Duc gives a perspective view (which we reproduce) of a portion of the hospital showing the arrangement of the cubicles and the gallery over. The windows of the gallery were glazed with grisaille glass, and those of the sanctuary with painted glass. The sanctuary was surmounted by a wooden spire, covered with lead, and painted and gilded, which was destroyed in 1793. The roof is covered with glazed tiles with enamelled terra-cotta ridges.

The hall, which is at present used as a chapel for the hospital, contains the tomb of the foundress, by Bridan, and the tomb of Louvois, by Girardon and Desjardins. The former, which dates from 1826, is said to have cost £920, exclusive of the cost of the marble, and is not a restoration in spite of the inscription on the pedestal, the original tomb, which was removed from Tonnere to Paris for the purpose of being melted down, having been of bronze. The tomb of Louvois was originally placed in the church of the Capucins at Paris, whence it was transferred to the Musée Française, and on the suppression of that museum was restored to the Louvois family and removed to Tonnere.

The hospital at Tonnere bears a remarkable resemblance to the Bede houses at Stamford and Higham Ferrers and St. Mary's Hospital at Chichester, which are illustrated in Dollman's Domestic Architecture. The author of that work, after premising that in the relative position of the buildings constituting a mediæval hospital or almshouse four principal arrangements present themselves, goes on to explain: "The first, and that of which the characteristics are perhaps the most definite, is to be found in those instances



PLAN OF THE TONNERE HOSPITAL. (*Scale 1 millimetre to a metre.*)

(A) The great hall, which was formerly approached by—(B) a porch with a staircase at the side, the position of which is indicated on the plan. (C) The hall contained forty cubicles, enclosed by wooden partitions, as shown at C. (D) The high altar, covered by a vaulted roof. (E) The tomb of the foundress. (F) Two side chapels with vaulted roofs. (H) Rood screens, enclosing the choir, communicating with two lateral galleries running the whole length of the hall, these galleries being also approached by the staircase at the side of the porch B, and the stairs to the rood-loft at I. (I) Staircase to roof-loft and galleries, communicating with a covered way between Queen Margaret's lodging, L, and the hall. (J) The Queen's garden, bounded by the city wall and the brook called Fontenelle. (K K) Administrative buildings. (L) Queen Margaret's lodging. (M) Hospital kitchen. (N) Covered way between the hall and administrative buildings. (O) Public way. (P) Burial ground. (R) Laundry. (S) The site of the priory. (T) The city moat. (X) Public well.

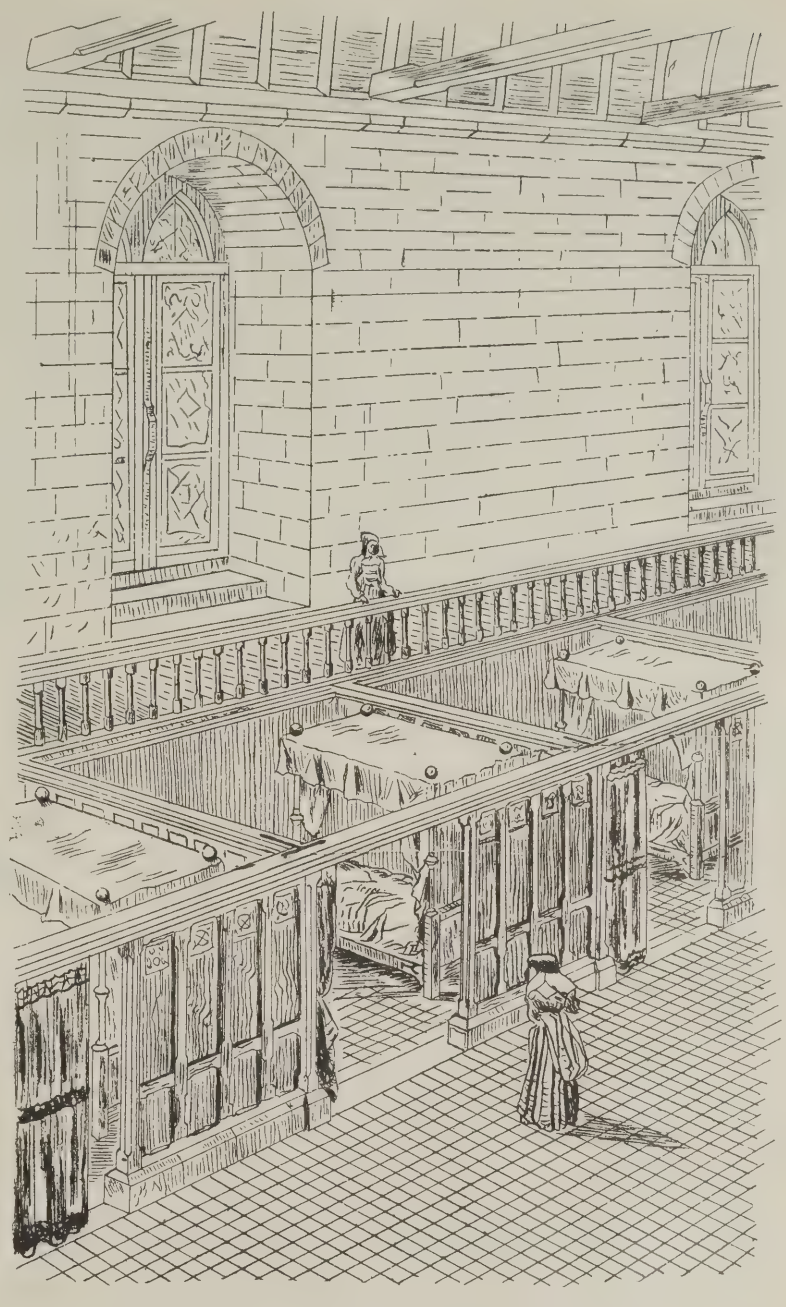
where the abodes of the inmates were all under one spacious roof, the area being subdivided into small dwelling-rooms or dormitories. This hall [*i.e.*, the area] communicated directly with the chapel beyond, from which it was only separated by an open screen, thereby affording an opportunity to the sick and aged of hearing the recital of the Church's offices, from which, supposing the chapel to be a distinct building, they would otherwise have been debarred. The motive of this wise and thoughtful arrangement may probably have originated with the ancient monastic infirmaries, and among the examples will be found the Bede houses at Stamford and Higham Ferrers and St. Mary's Hospital at Chichester" (Introd. Dom. Arch. xiv.).

The hall of the Bede House or Browne's Hospital at Stamford, Lincs, is 87ft. long and 21ft. wide, with a chapel at the east end formed by screening off a portion of the hall by a rather elaborate oak screen. The original stalls, seat-ends and misereres remain, as well as the altar-stone, which now forms a portion of the pavement of the chapel. There are ten dormitories, five on each side of the hall, with a corridor between 10ft. wide. The hall communicates by a cloister at the west end with the warden's residence, dayroom, kitchen, &c., which are in a separate building. The hospital was probably erected at the close of the fifteenth century, but has undergone extensive alterations.

The resemblance to the hospital at Tonnere is more striking in the case of St. Mary's Hospital at Chichester, founded originally in 1158 for the reception of nuns, but, from want of funds or some other cause, diverted to other uses in the beginning of the thirteenth century. The hospital consists of a spacious hall, 79ft. long by 45ft. wide and 22ft. high to the tie-beam of the roof, divided into a nave and aisles by massive wooden uprights, partly supporting the roof, which is in one span and extends over the whole of the building. The interior is now divided into four bays (the west wall having been rebuilt about sixty years ago), and seems to have extended two bays further westward. The aisles are divided into dwelling-rooms for the inmates, the present cabins being of a later period than the rest of the building, the date of their erection (1680) being marked on one of the chimney-stacks inside the hall, but it is probable that the present subdivisions replaced wooden partitions of an ornamental character of a similar character to those at Tonnere illustrated by Viollet-le-Duc.

The chapel at Chichester is a most interesting example of Early Middle Pointed or Geometrical Decorated work, the screen and woodwork being of the same period. The upper portion of the screen has, however, undergone some alterations, which appear to have been made at the time that the present cabins were erected at the sides of the hall. The chapel, which is about 45ft. long by 22ft. 6in. wide, is separated from the hall by a lofty pointed arch with an oak screen, and has an open roof. Dollman conjectures that the hall may have been originally the nave of the church which was pulled down, and that the hall, which is of a later date than the chapel, was erected on the site of the nave.

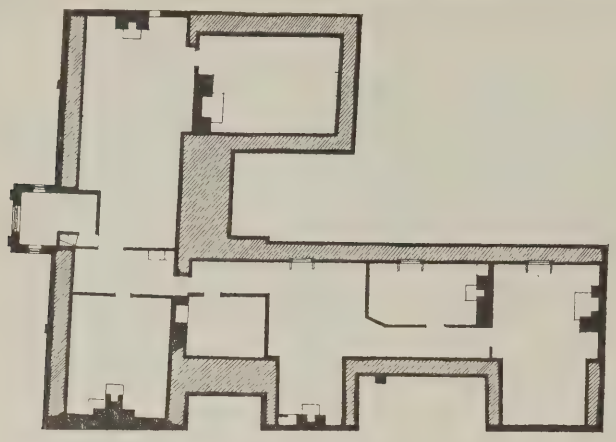
Parker's "Domestic Architecture of England," iii. 315, describes the hospital at Chichester as an admirable example of an institution of that nature, the present buildings dating from the time of Edward the First, and that it was probably built soon after 1290, when it appears from documents quoted in the Sussex Arch. Coll. that a new hospital building was in contemplation. Parker agrees with Dollman that the enclosures to the cells at the sides of the hall had probably wooden precursors like those at Wigston's Hospital, Leicester.



THE HOSPITAL OF TONNERE (FROM VIOLLET-LE-DUC).

LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.

A MEETING of this Society was held on Thursday, January 15th, the president (Mr. Butler Wilson, F.R.I.B.A.) in the chair. Amongst those present were Mr. Richard Wood and Mr. G. F. Bowman (vice-presidents), Mr. H. S. Chorley (hon. secretary), Messrs. Robert P. Oglesby, A. E. Dixon, &c. At the conclusion of the usual business a paper entitled "Rome, Ancient and Modern" was read by Mr. Arthur Marshall, A.R.I.B.A., president of the Nottingham Architectural Society. The lecturer remarked that although there was ample evidence of Regal Rome possessing structures of some magnificence it was left to Imperial Rome to furnish the city with its most striking monuments. The best preserved of these was undoubtedly the Arch of Constantine, the sculptures of which had previously adorned other edifices. The Pantheon, the Catacombs, the Colosseum, amongst others, were fully described with the assistance of lantern slides, most of them coloured by Mr. Marshall's own hand. A vote of thanks to the lecturer was moved by Mr. H. S. Chorley (hon. secretary), who dwelt upon the fact that a great portion of Rome as we see it to-day was built from the materials of other and more ancient structures which had long since disappeared. Mr. Robert P. Oglesby, in seconding the vote, referred to the welcome decision of the Italian Minister of Instruction to place marble records upon the site of vanished structures, thus enabling all to see the positions once occupied by Rome's quondam monuments. In conveying the Society's thanks to the lecturer, Mr. Butler Wilson remarked that the oftener one visited Rome the deeper was the impression left by every succeeding visit. It was quite possible to leave Rome, after first acquaintance, depressed and overwhelmed by the magnitude of its architectural wealth. Only by repeated visits could Rome be satisfactorily grasped and realised.



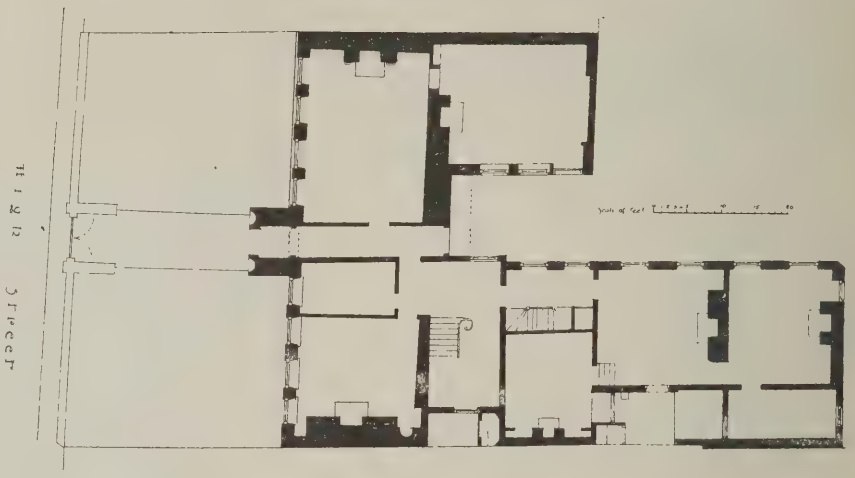
SECOND-FLOOR PLAN.



FIRST-FLOOR PLAN.

SIR JOHN LISTER'S HOUSE, HULL.

THE Corporation of Hull have recently purchased the interesting residence erected for Sir John Lister in the early part of the fourteenth century. This picturesque building, which is known as Wilberforce House, stands on the east side of High Street, a narrow and tortuous thoroughfare and probably the oldest in the city. From the earliest times High Street was the residence of the influential inhabitants of the city. Sir Gilbert de Aton lived there, as also did Robert de Dripol, Adam Helleward, Sir Hugh de Pickworth, Gilbert de Bedford, Richard de la Pole, Robert Rotenhering, Sir Richard de la Pole, Sir William de la Pole, and Michael de la Pole, Earl of Suffolk. Records relative to the site of Sir John Lister's house date as far back as the reign of Edward I. About the year 1570 the land became the property of John Lister, merchant, alderman, chamberlain, mayor and member of Parliament for Hull. He died in 1616, leaving sums of money towards the erection of a Merchant's Exchange, to the maintenance of poor children, and to the Church of Holy Trinity. His son, Sir John Lister, became mayor of Hull in 1618 and, like his father, was chosen as a representative in Parliament. He erected the house shown by the accompanying illustrations about the year 1620, and here he entertained and lodged with lavish expenditure King Charles I. upon his visit to Hull in 1639. The house remained in the Lister family until 1709. Sir John Lister founded a hospital (still bearing his name) for six poor men and six poor women who, in addition to rooms, receive 7s. per week and fuel. In 1732 Sir John Lister's house passed into the hands of William Wilberforce, grandfather of the famous statesman of the same name, who was born here in August, 1759, and was elected to represent Hull in Parliament at the age of twenty-one. His efforts for the emancipation of slavery are known the world over. Sir John Lister's house is a very quaint building standing some distance back from High Street, and is somewhat Dutch in character. The interior is extremely interesting with its broad staircases, enriched plasterwork and marble floor. Several of the rooms are very fine, being panelled in oak, and retain some of the original overmantels. The building is at present in a very dilapidated condition, having been used as offices since 1830. The house is to be thoroughly renovated, all the walls and other details which have from time to time been added to the interior of the building are to be removed, and the several rooms are to be restored, as far as possible, to their original condition. The work will be carried out under the supervision of the City architect, Mr. Joseph H. Hirst, and upon the completion of the restoration of the old house is to serve the purpose of a museum.



GROUND-FLOOR PLAN.

SIR JOHN LISTER'S HOUSE, HIGH STREET, HULL.

THE APPLIED ARTS.

SOME GUIDING PRINCIPLES.

By G. F. BODLEY, R.A.

ON January 20th a paper on "Some Principles that may be Guides for the Applied Arts" was read before the Applied Arts Section of the Society of Arts by Mr. G. F. Bodley, R.A., who said:—

I fear I have set myself a somewhat difficult task in speaking to you of some of the principles that rule or should rule what are called the "applied arts." It were easy to cite examples of the arts—to describe the great works of the past, to catalogue the achievements that the mind of man has conceived and his hand has wrought. It were easy, I mean, to bring facts before you. It is not so easy to tell of ideal principles that should guide and should enlighten the mind of the designer or the doer. Yet all art is a thing to be sought after and to be learnt, and it must needs have its principles. Nevertheless, in some sort art is instinctive, spontaneous, and its happiest achievements are those that spring free, sudden, uninvited, the happy inspiration of the moment. It is not for all thus to conceive or thus to achieve. Rules are best for most of us.

Well, I am now to speak of some of the principles that may lead us into and guide us along the delightful paths of creative art—creative, for art is nothing if not creative. Are there any such principles? Is art only an inspiration? Or is it only imitative? It cannot be merely an inspiration, for it is certainly learnt, fostered, and nurtured and developed by laborious thought of the mind and by the patient labour of the hand and by the traditions of the ages. It cannot be only imitative; for where, then, comes in the creative faculty? An inspiration may plant a seed; but the seedling will not reach perfection untended and uncultivated.

Here then comes in the use of principles to direct the growth into right ways, to prune, to educe the good and to root up and reject the bad.

This use, this carrying out, of principles in design is not, indeed, the most poetical or the most interesting department of the teaching of art. Far from it. It is rather the prose and the common-sense aspect of its initiative. It is very different to that "light that was never on sea or land"; it is different to the glad surprise of the joyous thought of an artist's mind; the grand or the beautiful conception, innate with the added creative power of the hand eager to achieve. Rules and laws are but as schoolmasters, and have a manner of restraining and curbing. But, to go back to what I have said, are there any principles that may guide us along the path of art? I think there are. First and foremost, there is the principle of following Nature—Nature in her stately grandeur or in her calm beauty; Nature, from the "human form divine" to the simplest flower or delicate, tiny shell; from the mighty mountain to the tender grass of the valley. In the highest arts, as in sculpture and painting, there is the obvious principle of closely and faithfully following Nature, not indeed without selection and judgment and feeling, and not, above all, without Imagination. For we must touch all our art work with human feeling and human thought. Nevertheless, the everlasting law for the arts of painting and sculpture is to be in complete harmony with Nature at her best, and to be faithful and true to her teaching. We know the superlative, the astonishing truthfulness of Greek sculpture; how each fragment found (if it be part of a nude statue, for example) is as delicately modelled as the living flesh and

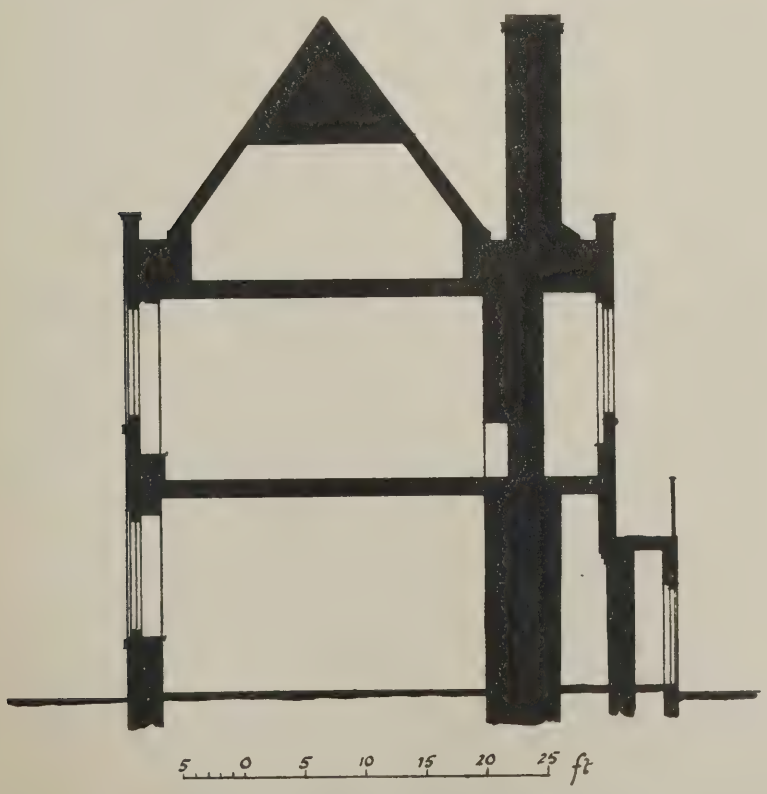
the skin-clothed muscles were—how drapery seems as if it were the very petrifaction of the light, delicate folds of the thin linen that draped the figure. I know not what is most remarkable about Greek sculpture, its beauty or its glad following of Nature. This then I would put as the primary rule and principle for all art—the following of Nature; and that not only in the forms and shapes of natural objects, but in giving to all things we make the very spirit of Nature. Sir Joshua Reynolds wrote: "It seems to me that there is but one presiding principle, which regulates and gives stability to every art. The works, whether of the poets, painters, moralists, or historians, which are built upon general nature, live for ever." What lessons of delicate curve and strength and delicate modelling do we not find in the human figure. And this brings me to the next principle that I would mention, one indeed closely allied to that of truth to Nature. It is this: to endow everything we make with the expression of life; to give to all our hand-made productions—be they but the common utensils of daily life, be they but pots or pans, or be they crowns for kings and queens—the expression of life. In all the great days of art there was that expression (which, indeed, has a sort of divinity in it) given in all things made. You find it in Greek work; you find it in the work of the Middle Ages, in all the civilized countries, when art was healthy and was growing gradually into the astonishing beauty that was produced in the great days of matured art. Everything, after its kind, was made, some more some less, with an expression of life. In their nervous, graceful or vigorous curves, in their kindly expression, there was life. As you well know, many flowers have an expression, some of the most pleasing nature. They smile at you. Well, in the same way the workers in gold, or in silver or other metal, or in china or pottery, gave an expression of life to the things they made, though the thing made had no exact resemblance in form to any natural object.

The thing, be it of the commonest type, be it your ink-pot, your chair or your table, or wine glass, or be it a jewelled cross or a silver heart for a lady to wear on her breast; be it a sceptre for a king, or a drinking cup for a child—one and all had in the best days of art an expression, nay, as it were, an endowment of life. The hand and the mind of man, their maker, had so endowed them. No doubt it may require some imagination to see this; and some good things may have it but slightly, and some more, some less.

But now look at modern things of the kind I mean. Except some few made under better auspices, they are dead as the clay or the gold out of which they were made. In the one there is the beautiful curve, full of energy, or it may be of repose, or it is generous of a pleasing and a kindly expression. The other is dull, nay dead, without expression, except indeed it be one of inane ugliness; and even that would seem to have come by chance, so much inanity there is in it. In the one the mind of a man who loved and enjoyed his work is reflected. In the other there is none of this. It is vacant, lifeless, hopeless. When you are at a museum of good old art objects look at them and compare them with nearly all modern manufactures. If you have artistic perceptions you will readily see what I mean. And it is this that I mean—the mind, not alone the hand of its maker, has endowed the object with an expression; and following, in all reverence be it spoken, the divine law of creation, he has breathed into it the breath of life. Where this is done, we have, so far, a work of art. If it is not done, it is poor stuff at best. And it is not the richness or the poverty of the thing that brings this to pass; for the simplest object may have the expression of life, and indeed of beauty, and the richest may be wholly without it.



SIR JOHN LISTER'S HOUSE, HIGH STREET, HULL.



WILBERFORCE HOUSE, HULL: SECTION.

The late Lord Leighton used to have a small Greek lamp on the mantelshelf in his studio. It was utterly simple in its lines and without what you would call ornament, but it was not only beautifully designed, it was, to my eye, instinct with the expression of life. I have said that Nature was our guide; well, chairs and lamps and the proverbial pot and pans cannot be made like any natural object, or, if so made, they would be wrong, utterly wrong. But they and all things can in different degrees and in different manners symbolize life. Is it not this expression of life that makes conventional ornament not only bearable but pleasant in its place and after its manner? You know how in every style and manner of architectural art conventional ornament has played a conspicuous, an important—nay, I may say, a delightful—part. Well, why is this conventional ornament not only to be tolerated but to be a real pleasure? I think, nay, I am sure, it is because in all good, intelligently designed conventional ornament there is an expression of life. It is this that gives a soul to Art. Beautiful beyond compare are the forms of flowers, of leaves of trees, of the very grass of the field. But more beautiful is their expression of expanding life, whispering, perhaps, and moving to the gentle air. And this expression you can give to the work of hand made things—manufactures as we call them. I have mentioned the old testimony of the Creation: "He breathed into them the breath of life." And man, "whose breath is in his nostrils," so frail and passing, with so brief a life, can,

if he will, endow his own handiwork, his own creation, with the very resemblance of life. It is this that makes the lesser arts noble. And would not this and other principles raise manufactures that are made by the hand of man, directed by his mind—would they not take us, I would ask, into the region of art? I do not mean into the region of high or fine art. Things may be made and are made by machinery, helped by the hand of man, without help from his mind. There is no art in such things, only ingenuity. Others may be made by machinery too, but directed by the mind of man. I mean such things as woven tapestries and carpets and other textile fabrics, and they come into the region of art. As we say of some things, "It is quite a work of art." We may truly say so of the best kinds of Eastern carpets, so beautifully made and so beautiful in their colouring.

Have you ever observed how the mind of a weaver of these Oriental carpets works with his hand? For example, when an orange-tinted wool comes against a red it pales to a more golden hue; when it comes against a blue it will warm or deepen again. The orange against the red would have been hot and unpleasant-looking. Alas! that these Eastern manufacturers are so fast degenerating. Indeed, some kinds or "makes" of carpets that have been beautiful for many centuries (we know some portrayed in the accurate pictures of a Van Eyck or a Memling) have, I am told, recently ceased to be made at all. I hope that Lord Curzon's good work in trying to maintain Indian manufactures may be of use. Not that much Indian furniture is really satisfactory in design; but the carpets and many other textile fabrics are beyond praise. They are delightful, and teach us how colour should be treated in manufactures. They are works of art most certainly. It is true that fine art takes us into a higher region and to a nobler ideal. But here at this "Society of the Applied Arts" we are, I suppose, on somewhat lower, perhaps more useful, ground. But even in the weaving of carpets—in their palpitation of colour—there may be this expression of life as well as in the drawing of their foliage or other ornament. I would that we lived with more beauty round us, and had not the deteriorating influence of the ugly things that crowd around us. Life would be happier. How depressing are all ugly things! But I must pass on.

Another principle of art that I would mention is that of breadth of effect. It applies largely to artistic manufactures, or manufactures that might be artistic. Now I cannot but think that in art one thing greatly lacking in these days is this grand quality of breadth of effect. I venture to think so of much modern painting, whether of pictures or decorative work. In all the arts breadth of effect is a great quality. Here again look at Nature. The low-lying land and the grassy hills, are they not broad in colour, in their vast expanse of green?—varied and gradated green, no doubt, as all Nature's colouring is gradated, but, broadly, green. And the sky, is not its great dome at time all blue—gradated, indeed, again, to a silvery tint where it touches the dark green land? And the clouds, are they not at times all tints of grey and at times all that beautiful colour of solemn, subdued purple that we call inky? That is so beautiful against the green of the hill or of the trees. I am not forgetting the sunrise or the sunset, but those are but moments of exceptional beauty that linger but for a little while. And the green of the land may be sprinkled with flowers, but they are but as jewels on a robe of one tint.

The more subordinate the nature of decorative work may be, the more broad it should be in its treatment. For example, mosaic work for a vaulting or a wall is quite the best if it has but few colours. You may have a gold background, and your figures may be one all in shades of reds, another all in shades of blues or greens, or a purple robe may be lined with green—colours that have a delightful affinity—and the result will be broad and satisfying. So in marble work black and white, red and white, green and white—only those two colours together—will be more dignified than if other tints are intermingled, to the loss of breadth of effect. What is it that makes the difference between many new buildings and good old examples of architecture? It is not the charm of age, for that chiefly affects the colour. Is it not that the old work has a noble breadth of effect and a unity of idea, restraint and an avoidance of all discordant elements? While of much modern work must we not say that vulgar confusion and useless variety and display take the place of suavity of manner and a dignified and noble breadth of effect? For there is in old buildings a nice economy not only of material but of ornament, and there is a satisfying charm about most of them, of almost any period. The old architecture had stately manners. Too many of our new buildings have pretentious ways. I think it is from the lack of the principle of refinement, and especially of a delightful breadth of effect, that many things suffer nowadays. It is a principle that extends to literature. Unity of idea is a mark of a great poem, or, indeed, of all good literature. But I am trespassing on to other land.

We live at a time in which there is a considerable feeling after a better and more beautiful treatment of designs for new buildings in our streets. They are certainly becoming more ornate, and more pains is being taken to make them more interesting than in days when the long unlovely streets, like Harley Street or Wimpole Street, were built. What seems missing in many, if not most, of these street-fronts is a sense of greater dignity and restraint of character; more refinement and more breadth of effect. In one word, a higher conception and a more refined and broad and a more reasonable carrying out of such conception. The great principle I have spoken of, refinement, is too often absent. Indeed, too many new buildings cannot but be designated as pretentious and vulgar, instead of being dignified and refined. It is a critical time for architecture. I hope we may see better work done, more thorough in the expression of the principle of truth and of a stately beauty both in the humblest and the noblest buildings.

And now one word about colour. I can only briefly touch on this. It is a large subject, and colour is a thing so subtle, so delicate, so strange in its ways, that it seems to be beyond rules and laws. For example, you may place one red against another—a crimson, laky red against an orange red; in other words you may mingle your different reds together and always with happy result. Who has not seen the peasant children in Italy, in the shaded slums of the old town it may be, or in the country under the bright sunlight. Their dresses are frequently—most frequently—reds of very different tints, scarlet and crimsons, and all harmonize. In pictures by the Old Masters you will find one figure in robes of one red, and side by side with it another in a robe of a totally different hue of the same colour: all is harmonious. Now try to do the same with different greens. You cannot. A warm fruity green, beautiful in itself, will not harmonize with a cold silvery green, though that too may be beautiful—most beautiful—in itself. I am speaking of decorative painting. Why is this? I can find no reason except that colour is so delicate a thing that it is allowed to be free from laws—to be beyond rule, so that I am reminded of a volume of travel in which one of the chapters is headed in the index "The Snakes in Iceland." You turn to the chapter, and all that is said about the subject is "There are no snakes in Iceland." And so with the laws and principles for colour; indeed, I think there are none. Nevertheless, the eye can be trained, and the taste can be cultivated to love the beautiful in colour as in form. For everything is there the law to be beautiful.

Another principle—or should I say a desirable practice?—is that of founding work on what has gone before. It is at times a charge made by somewhat shallow thinkers, if I may say so, that all work must be entirely original and absolutely new. Sir Joshua Reynolds did not think so of works of painting. He said the best work that had been done in the long history of painting was founded on the work that had been already achieved. He says that such work will be the "most *original*, though it seems like a paradox to say so."

It is, indeed, but reasonable in the different departments of the arts, it is but natural, to found your work on that of the past. You have a thing to do; you have to design for a certain object. Well you build, as it were, on the foundations of the past. But you see how this or that can be improved on, refined on, or strengthened. You see it with the eyes of your own mind, and conceive it afresh with your own imagination. You develop the original idea; you depart from it; or you give it a new character—a new clothing. In one word, you make it your own. Has not this been so in all the arts? Is it not that art hands on its Spirit which is immortal? If I were speaking to students of art, I should say, "Fear not to found your work on that of the past ages." Catch the spirit of beautiful work already achieved, and, as it were, grasp the torch from the hand, the doer of work in the past, and throw a newly-directed light with it—a light to fall on a new parting of the ways—ways that may lead to higher heights yet attained and to pastures new. That is the way to utilise old traditions. You need not ignore them. Do not so; but use them as stepping stones to still higher and nobler imaginings.

I could say much more of the guiding principles for art. I could tell you of the principle of strength, not only of strength of construction but of strength of artistic expression. I could tell you of delicacy without weakness and of power without coarseness. Of truth (and, indeed, that should have had the first place), I could tell you of harmony and of the avoidance of all harsh and violent contrasts. I could tell you how the nature of the material some use often controls the very first idea of a design; and of other characteristics leading to good and artistic work. But I should weary you; indeed, I fear I have already done so. One word more, and it is this, while such principles as I have feebly touched on are, and should be, as it were, the by-laws of art production, yet, in all the arts, a healthy, well-informed and well-cultivatied imagination is beyond and above all rules.

In the course of a brief discussion which followed Sir G. Birdwood related that an Oriental carpet-maker, on being asked on what principle he arranged his colours, replied, "We let them occur."

Mr. G. C. Haité said the underlying principle of applied art was fitness, and remarked that a design might be conventional but yet true to nature, for to conventionalize was only to emphasize the truths of construction.

A new Infectious Diseases Hospital is to be erected near Castle Douglas, N.B., from plans by Mr. J. A. Macgregor, architect of Castle Douglas, at a cost of about £3,000. The buildings are to be of brickwork with hollow walls, rough-casted externally, and roofed with green slates and red ridge tiling.

Enquiries Answered.

The services of a large staff of experts are at the disposal of readers who require information on architectural, constructional or legal matters. Questions should in all cases be addressed to the Editor. The querist's name and address must always be given, not necessarily for publication.

Buildings to Measure around Bolton.

BOLTON, LANCS.—NOCTE writes: "Kindly name some buildings in this district suitable to measure for the R.I.B.A. testimonies of study and examinations."

The district immediately around Bolton (Lancs) is about as bare of architectural interest as any in England. Bolton Town Hall is a good modern building, from which one of the "Orders" might be measured as a testimony of study for the Intermediate examination; but for Gothic work it would be necessary to go to the Perpendicular church at Chorley, or even so far as Prestwich on the far side of Manchester, where there is a Norman doorway of considerable interest, good Perpendicular detail, an excellent wooden screen by Austin & Paley, a lych-gate, and a charming half-timbered priest's house dating from the fifteenth century.

G. A. T. M.

Strength of Piers and Structural Ironwork.

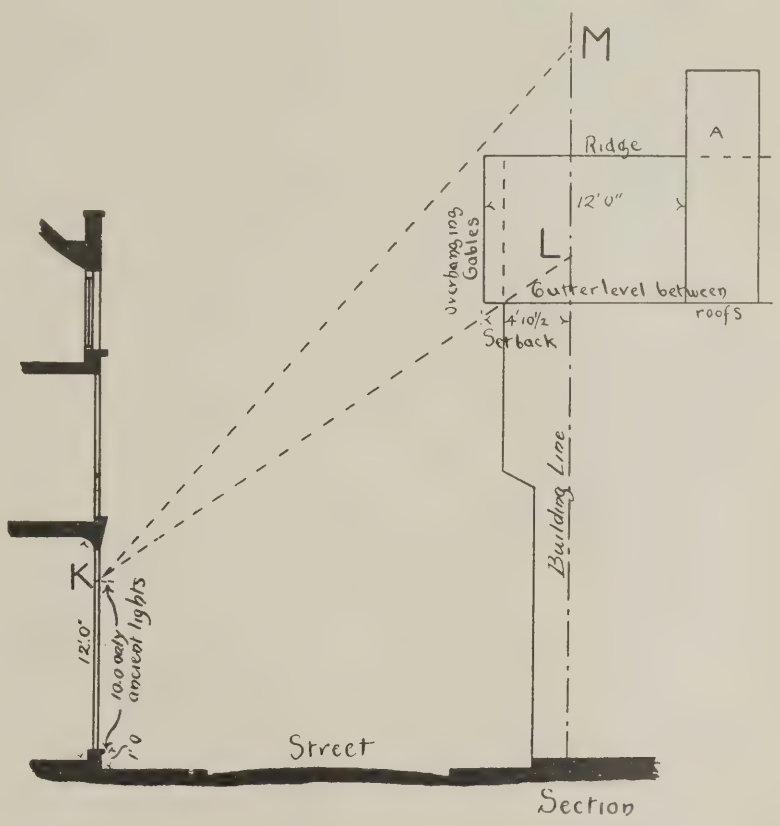
SHERBOURNE.—H. H. W. writes: "(1) An ordinary brick pier, built in cement, is 18in. by 18in. and is 12ft high. What weight will it carry? (2) Kindly give the section of an iron girder to carry a distributed dead weight of 12 tons over a span of 12ft.; and (3) the section of a steel stanchion to carry 40 tons."

(1) Assuming that the 18in. by 18in. pier 12ft. high is built of ordinary stock bricks in cement the safe load on the material will be 6 tons per ft. super. (see "The Practical Designing of Structural Ironwork," First Series, p. 43; E. & F. N. Spon, Ltd., 125, Strand, 8s. 6d). As a pier, with a ratio of height to least thickness of $\frac{12}{1{\cdot}5} = 8$, the safe load will be $w\left(\frac{24 - r}{18}\right)$, where w = safe working load tons per sq. ft. on the material as given above, r = ratio of height to least thickness: therefore safe load on pier $= 6\left(\frac{28 - 8}{18}\right) = 5\frac{1}{3}$ tons per sq. ft., and as area $= 1{\cdot}5^2 = 2\frac{1}{4}$ sq. ft., the safe total load will be $5\frac{1}{3} \times 2\frac{1}{4} = 12$ tons uniformly distributed. By another formula (Adams's) the safe load in tons per sq. ft. on a stock brick pier in cement $= 8 - \frac{l}{3d} = 8 - \frac{12}{3 \times 1{\cdot}5} = 5\frac{1}{3}$ tons as before, or 12 tons total. (2) Assuming the iron girder to be a rolled joist, reference to Dorman Long & Co.'s catalogue shows that a 8 × 5 × 30lb. rolled steel joist would carry 12 tons distributed over a 12ft. span with a factor of safety of rather better than $\frac{1}{3}$. If it be desired to calculate the flange section of a girder without reference to a catalogue, the gross sectional area of flange in sq. in. will be found by the formula $\frac{wl}{8d} \div f$, where w = distributed load in tons, l = effective span in ft., d = mean depth in ft., f = working stress allowed in tons per sq. in. This will apply either to rolled joists or built-up girders, but in either case a section cannot be at once sketched out, as it depends upon various matters that must be duly considered. (See "Designing Ironwork," as above, p. 38, also 2nd Series, Part I., Spon, 1s. 6d.) (3) If the steel stanchion 12ft. high to carry 40 tons is to be a solid section, reference to Dorman Long & Co.'s catalogue shows that a 12 × 6 × 44lb. rolled steel joist carrying 230 tons will allow a factor of safety of 5·6 when the ends are fixed. If a built-up stanchion is desired a simple approximate rule is to allow 4 tons per sq. in. up to a length of 20 diameters, $\frac{12 \times 12}{20} = 7{\cdot}2$in. minimum diameter or width, $\frac{40}{4} = 10$ sq. in. area, $10 \times 3\frac{1}{3} = 33$lbs. per ft. run for a section having the same moment of inertia in both directions. In important work, after finding an approximate section the actual strength should be carefully calculated, which is a matter of some doubt as well as difficulty. The whole case is discussed in Part II. of the 2nd Series of "Designing Ironwork" (Spon, 2s. 6d.).

HENRY ADAMS.

New Buildings and Ancient Lights.

CRAWLEY.—A. P. writes: "My client owns business premises in a street 27ft. 6in. wide, and wishes to rebuild them. The present buildings are very ancient but picturesque, with carved overhanging gables, &c., as shown by the accompanying sketch. I propose to abolish the overhanging portion and set back—in fact, the local authorities insist on this. It is proposed to set the building back to the line shown in dot and stroke, which is 4ft. 10½in. from the face of the barge-boards. How much higher might I reasonably make the new building so as not to substantially interfere with my neighbour opposite?"



ANCIENT LIGHTS.

Though your opposite neighbour might cause you a good deal of trouble were you to carry up your building so as to obstruct his light more than it is obstructed at present, he would be unlikely to succeed in obtaining damages against you unless such further obstruction were material. As the street is narrow, it might well be argued that any further diminution of light would be material, at any rate to the ground floor. Were the matter taken into court the result would depend upon the personal view which the judge might take, but in all probability it would be safe to determine the height of the gutter by the line K L and that of the apex of gable by the line K M, the point K being taken from the top of ancient light or ground floor. Rather than risk an action, however, what is proposed to be done should be explained to the neighbour and his consent in writing obtained on a form drawn by a solicitor. Even where your building does not exactly face your neighbour's the same system of determining the height should be followed.

G. A. T. M.

Architect's Position in regard to Defective Work.

LONDON.—H. P. writes: "A takes on lease a piece of ground. B, an architect, is introduced. A engages him to prepare plans and specification for the erection thereon of a small hall, cost not to exceed £2,000. Tenders are invited, and when opened the lowest is over £3,000, which A cannot accept: consequently the drawings and specification are varied, and fresh tenders are invited, the lowest of which is ——, accepted, called C, who commences the work after signing the form of contract published by the R.I.B.A. In the opinion of A, C at once shows signs of scamping the work, and A therefore complains to B, who, however, does not trouble much. The district surveyor visits the work and serves C with a notice to comply with his requirements. C acquaints A and B, and asks for instructions to satisfy the district surveyor. Considerable variations have to be made in the contract, entailing much extra cost to A (which, of course, much annoys him, and causes estrangement between A and B, which C is not slow to take every advantage of). Ought B to have known the probable requirements (reasonable) of the district surveyor and provided for them? A does not pay the full amount of the contract, but retains £100, for which C threatens to sue him; no account or measurements is rendered, and there is no mention on B's certificate that it includes extra work. The work completed and the building occupied, the brickwork soon begins to show signs of movement, and cracks appear in the work. C sends his men to repair the defects; this done, the defects again appear and gradually extend. What is A's position? Is B responsible

for incompetency and neglect? Can A proceed against B for damages? The specification and plans are vague—the conditions are those in the schedule of signed contract. In the event of C refusing to reinstate the defective work after due notice, can A call in another builder to do the work (reasonably) necessary in the opinion of another architect or surveyor, and deduct it from C's balance of final certificate? No quantities were taken out for the work."

As far as we can judge from the above statement, it appears that A requires too much for his money. A must not confuse the builder and architect with each other. The architect is A's agent and is in the position of a quasi-arbitrator, and the client is responsible for his acts. A can only proceed against the architect for collusion, fraud or incompetency. There seems no suspicion of the two first, and the only question is as to incompetency. This is a very difficult matter to prove, and we do not think it could be based on the non-compliance with the Building Act, more especially as it seems as if the variations were rendered necessary by the alterations made by A to reduce the cost of the job. The architect ought certainly to have ascertained beforehand if the plans were in conformity with the Building Act, but there may have been reasons for not doing this which we are unaware of. The builder must be paid according to the terms of his agreement and the amount of work done. After all, A has extra value in the extra work and must pay for it. A is entitled to retain the agreed sum until an account for the extra work has been rendered by C and certified by B. Payment generally must be made upon the architect's certificate, he being A's agent. The cracks in the brickwork are due to insufficient foundations, which may be due to bad design or unknown causes in the character of the subsoil, and if the former the omissions may have been made to reduce the cost. If A has cheap work done he must expect it not to be of the best quality. On the whole, we advise A to compromise as best he can, as the whole affair seems to show want of knowledge and business acumen on his part.

Architectural Books.

BLACKPOOL.—S. H. writes: "Please name a good book on architectural perspective, and also one on lettering for quick office work."

"Architectural Perspective," by F. O. Ferguson (B. T. Batsford), 3s. nett; "Alphabets, Old and New," by Lewis F. Day (B. T. Batsford), 3s. 6d. nett.

R.I.B.A. Intermediate Examination.

BLACKPOOL.—E. E. writes: "Kindly recommend a book on outlines of the history of Mediæval and Renaissance architecture in Europe suitable for the above examination, price about 10s."

"Classic and Early Christian Architecture," by Prof. T. Roger Smith and John Slater, B.A., and "Gothic and Renaissance Architecture," by Prof. T. Roger Smith and Sir Edward J. Poynter, R.A (Sampson, Low, Marston & Co.), 5s. each.

Painting Iron Tanks.

LONDON.—A. J. B. writes: "I have an iron tank containing cold water, which has got very rusty. The surface has been scraped. What is the best preparation with which to paint to surface so as to prevent further rust?"

The surface should be well scraped with files or wire brushes, and painted with four, or at least three, coats of oxide of iron paint. A very good paint also is red lead and linseed oil, but, it is claimed, sets up galvanization, which oxide of iron does not, though this is doubtful, or at most very slight.

A.A. OF IRELAND.

TECHNICAL DEMONSTRATIONS.

THE committee of the Architectural Association of Ireland, having regard to the success of the former series of technical demonstrations held two years ago, decided to hold a second series this session. These demonstrations, which are free to all members, afford unusual opportunities for architectural students to observe how work is actually executed, and to learn to discriminate between good and bad materials. They thus form a valuable addition to the knowledge obtainable in the drawing-office and from text-books. A circular has been issued to all the architects of Dublin with the purpose of inducing them to allow their pupils (and where practicable their assistants) to regularly attend the demonstrations, which will be held every Thursday up to the middle of March. Prizes of two guineas and one guinea will be offered for the two best series of illustrated notes on the complete course.

The first demonstration was held at the premises of Messrs. John M'Ferran & Co., Dublin, on January 15th. Mr. R. M'Ferran having explained the various qualities of drain pipes, showed a double-socketed pipe which has the advantages of rapidity in laying, true alignment and resistance to subsequent depression. Various samples of English, Irish and Scotch bricks were brought to the notice of the members, the durability, quality and facilities of manufacture of each being commented upon. The weather-resisting qualities of Irish, Welsh, American and French slates were compared, some excellent examples of the Killaloe slate being especially noticeable. The demonstration concluded with a series of tests on Irish Portland cement by a representative of the firm. Many rapid and practical methods of distinguishing good from bad materials were explained, these latter being very useful to the assembled students. Mr. M'Ferran was assisted by a representative of the Bourtreehill Coal Co.

The second technical demonstration was held on Thursday last at the premises of Mr. Edmund Sharp, 42, Great Brunswick Street, Dublin, the subject being "Building and Decorative Stones." Mr. Sharp, who had prepared numerous specimens of limestones, sandstones, granites, marbles, &c., both native and foreign, first dealt with their comparative durability. The finished surface of limestones and sandstones, at all events in Ireland, should always be smooth—at least one grit. The stone will weather infinitely better, firstly, because water will not be retained on the smooth surface to any great extent, and also because hammering stuns the surface and lessens its resisting power against frost and atmosphere. Throatings should be as shallow as possible, and kept well back from the edge of the stone. Corsham Down stone treated with "Fluate" had stood the Irish climate satisfactorily. Blocks of stone showing various facings were shown, and the methods of obtaining these explained. After a few practical remarks on granite and marbles, the lecturer concluded the first part of the demonstration by saying that lack of capital and energy prevented the proper working of many of the numerous and splendid beds of stone in Ireland When a quarry was opened it was often the practice to put the top layer on the market instead of waiting till a considerable depth had been reached. The result was a porous stone of insufficient density, which soon obtained a bad name. There was an excellent sandstone at Clonaslee, near Tullamore, of a rich warm colour, which might be worked with advantage.

Mr. Sharp next gave a brief history of mosaic work from early times to the present day, and showed the students the method of cutting the glass and forming it into patterns, which work is extensively carried on at his premises. The members were then taken through the shops and shown pulpit and altar carvings in hand, and the labour-saving machinery installed for cutting, rounding and smoothing small columns and bases. It was interesting to find a Dublin firm of sculptors executing works for England, Scotland, Australia and the West Indies. At the conclusion of the instructive demonstration, the many students assembled passed a hearty vote of thanks to Mr. Sharp for the trouble he had taken. In acknowledgment the lecturer stated that the specimen he had prepared would not be lost, as he intended to hand them over to Mr. Alberry for the technical museum which the latter hoped to form in connection with the Association.

A general meeting of the Association was held on January 20th, Mr. C. J. McCarthy (city architect) presiding, when a paper on

Stained-Glass Work

was read by Mr. A. E. Child, who has recently been appointed teacher in the School of Art, Kildare Street, Dublin. The lecturer dealt with his subject from the point of view of a craftsman thoroughly imbued with that school of thought which, avoiding mere copyism of past accomplishments in art, seeks inspiration from the best elements of such and goes to nature's boundless garden for the rest. The pictures thrown on the screen included a number of windows recently put up in Gloucester Cathedral illustrating the best principles which should influence stained-glass work. The lecturer explained in detail the method of painting glass, and advocated the doing of the whole window together rather than in separate pieces, as often done in commercial work. He showed that the use of enamel as a colouring medium was bad, because of the difference in contraction and expansion between the glass base and the superimposed enamel. The pigment should fuse at a slightly lower temperature than the glass, so as to become part of it during the burning. It was often necessary to subject the glass to two or three burnings before the right effect was gained. The usual course was to use tinted or white glasses, and by shading them with a preparation of oxide of iron and manganese to obtain the required effects and outlines. The lecturer spoke very strongly against the popular way of cutting down the price allowed for stained glass below that at which it was possible to get good work, and advocated concentrating the effort and expense on one part of the work (in preference to carrying out a large quantity of mediocre design and workmanship) and to leave everything else quite plain until it was possible to complete all in harmony with the first. A hearty vote of thanks was proposed by Mr. Harry Alberry, and seconded by Mr. Beckett. Mr. Sykes also spoke.

The Quest House and the "Pawn-Shoppes" in Cripplegate are being demolished to widen that portion of Fore Street, which is too narrow to cope with the congested traffic. The Quest House, it is believed, was built prior to the year 1564, as in that year mention is made in the Hustings Deed of the Corporation record of the "Common Hall" of the parish, while eighteen years later it is distinctly alluded to by name. The origin of the shops was peculiar. In 1654 the parish possessed sufficient money for benefactions to the aged poor, but no proper provision for the clothing of poor children. The four shops were erected, and the rents derived therefrom were devoted to the charity. The ancient gateway, on which may be seen hour-glasses and skulls and bones, will be preserved, though it will have to be removed for that purpose. It bears the date 1660.

COTTAGE BATHROOMS.

By B. WYAND.

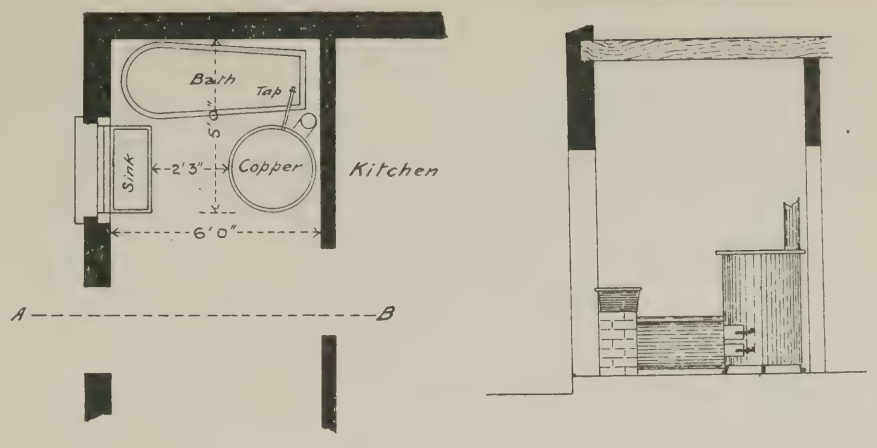
IT is quite probable that within the next ten or twenty years local by-laws will compel the provision of a bathroom in every new building. As matters now stand, the builder or owner is under no compulsion, and as a consequence it is only in quite exceptional cases that the smallest class of property provides any means whereby the tenants can have a "thorough wash." Some landlords, with the best intent, strike a mean course and provide a bathroom with a cold supply only; but this proves of very little use in the majority of cases, for it is easier to "tub" in front of the kitchen fire in a small portable bath than to carry the pailfuls of hot water required for the fitted bath upstairs.

The whole question resolves itself into one of expenditure. To provide the smallest of bathrooms with the cheapest of baths and fittings, and to instal a high-pressure system of hot-water supply, will run to at least £30, and this multiplied by two or more for buildings constructed as flats, or taken by itself for small cottage property, forms a prohibitive item in the cost of erection. The provision of a room and bath with cold supply only could be done for about £20; but then, as has been said above, a bath without hot water is not worth its cost, and it certainly would not warrant the provision of an extra room for its reception. What is required in cheap property is some means whereby the tenants can have a hot bath when they please at a minimum cost, and without being called upon to pay an additional sixpence a week rental for the accommodation. It matters little where the bath is fixed so long as it is not in a living-room and it is not necessary to go to any expense in the way of fittings, casings or tiled floors.

The scheme shown in the illustrations to this short article is the simplest and cheapest possible. The scullery has been chosen as the bathroom owing to the fact that, the day's work over, this room is in little use, and that here is fixed the copper for washing purposes. As will be seen from the figured dimensions, bath, copper and sink can all be put within a space of 5ft. by 6ft.—which is little more than the space usually occupied by the two latter appurtenances. The copper shown is a 20-gallon portable (a built-up one would do just as well), from the furnace pan of which a short length of pipe is taken as a bath hot supply and finished with a ground plug bib-cock. The hot water is, of course, drawn from near the bottom of the furnace pan, and should there be any trouble as to obtaining sufficient fall in the pipe, the copper can be raised upon a slab of stone or the portion of floor which receives the bath can be sunk a few inches. Bath, copper and sink would each have cold supply from the service—a trifling expense—but there would be no need (even if it were possible) to provide a hot supply to the sink.

The most useful form of sink in a scheme of this kind is that known as the Scotch pattern, or "jaw-box" (the latter name seems very appropriate), which is fitted with a plug and overflow and can be used as a wash-tub. Water from the copper can be baled into this on washing-days, and with another fill-up the fire may be utilised to cleanse the family in the evening.

The extra cost of such a scheme as this may be said to be covered by the price of the bath and waste, the expense of running a couple of feet of pipe, and the supply of a tap and union—say £3—and this small outlay would, I am sure, pay for itself over and over again. Houses or cottages with such a convenience would be eagerly sought after, for it is quite as much want of opportunity as natural antipathy that keeps the working classes from the luxury and benefit of a hot bath.



PLAN. SECTIONAL ELEVATION ON A B.

COTTAGE BATHROOMS.

Law Cases.

Brick Moulds: A Patent Case.—At the Burton County Court an engineer named Collier recently sought to recover from Mrs. Woodward and Messrs. Woodward & Co., Ltd., the sum of £50 by way of royalty on a patented invention. The case of the plaintiff was that he was the patentee of an invention for an improved apparatus for pressing bricks, tiles, &c., which the defendants (who carried on business as sanitary pipe and glazed brick manufacturers at Swadlincote) had used without paying any fee or royalty. The plaintiff said that down to 1898 the defendants used a solid box for the pressing of bricks. In 1897 he thought out the idea of a spring box, and in July, 1898, his specifications were accepted and he got his letters patent. That year defendants ordered two machines of his spring-box patent, and had used those machines. The solid box required replacement every three weeks at a total cost of about £42; while the total expenditure involved in the replacement of the spring box was between £4 and £5, and the spring box turned out 100 more bricks per day. The average of rejections from the solid box was about 10 per cent. and from the spring box not more than 2 per cent.—His Honour said that he had come to the conclusion that there was some agreement between the parties regarding the patented boxes, but he was in difficulties as to the amount that should be paid as remuneration for the use of the boxes.—Verdict for the plaintiff for the amount claimed, £50, with costs.

Extras: Unsuccessful Claim against an Architect.—Mr. Samuel Sleigh, hotel proprietor, Spalding, recently brought an action against Mr. William Henry Brown, architect and surveyor, Ipswich, to recover £700 damages for alleged negligence on the part of defendant, and £45, moneys lent by plaintiff to defendant. There was a counter-claim by defendant for £175 in respect of professional fees, £42 for travelling expenses, and £4 16s. for attendance as a witness.—Counsel stated that in 1899 plaintiff took from Trinity College a lease of the Blue Boar Hotel, Cambridge. At that time the hotel was very much out of repair, and it was arranged that the college should find the money for a number of alterations. Plaintiff met defendant and suggested he should be the architect for the work, and explained that whatever alterations and repairs were made they must come within the sum allowed by Trinity College, and also that sufficient margin should be allowed for his (defendant's) own remuneration. The college authorities said they were willing to spend a sum not exceeding £3,000 in carrying out the work according to defendant's plans, but with some modification of detail, any expense above £3,000 to be borne by plaintiff. The college further decided that plaintiff should be the building owner, and recommended as builders Messrs. Coulson & Lofts, of Cambridge, who tendered at £2,960. This was accepted and signed by plaintiff, and work commenced. Subsequently, the question of extras arose, and upon this plaintiff repeatedly impressed upon defendant the fact that he would not be responsible for any extras, which must be met by deductions. Extras, however, were allowed to accumulate by defendant, who gave a final certificate to the builders of £983 8s. 5d., bringing up the total expenditure on the renovation to £583 over the £3,000. Plaintiff refused to meet this, and last year the builders issued a writ against him for the amount. Judgment was given against plaintiff, and he had had to pay this sum. Unfortunately, plaintiff was prevented from going into the question whether the extras had been properly ordered by defendant in writing, as provided by the contract, because he could not go behind the certificate of his architect. Accordingly, he had no answer to the case. Under these circumstances, the action was brought on the ground of defendant's negligence.—Defendant stated that it was never arranged that he should do the whole of the work for £3,000, including his own remuneration. It was suggested that the expenditure should be limited to that sum, but no agreement was made in respect of his commission. No extras were carried out without plaintiff being consulted. It was not until after Messrs. Coulson & Lofts's action that any complaint of negligence on his part was made either verbally or in writing.—The judge, in delivering his judgment, said that plaintiff did what everyone who was fool enough to build did—he said to his architect, "Keep the expenditure as low as you can." In his judgment plaintiff's case failed altogether. There was no hint or suggestion of bringing any action or finding any fault with the defendant until the action brought against plaintiff by the builders had taken place. He could not imagine how that action was resisted, or how it got into court at all. On the claim his Lordship gave judgment for the defendant with costs. Respecting the counterclaim, defendant was entitled to a 5 per cent. commission on the £3,500 beyond all question and the £4 16s. claimed for attendance as witness. These two items made a total of £179 16s., and from that must be deducted £49 17s. 6d. for which defendant gave plaintiff credit. His Lordship therefore gave judgment on the counterclaim for defendant for £129 18s. 6d., with costs.

A Road Contractor's Action for Libel.—The case of *Dandridge* v. *Hales* recently came before the King's Bench Division of the High Court of Justice. Both the plaintiff and the defendant in this case were builders and contractors carrying on business at Shanklin, Isle of Wight, and the action was brought to recover damages for libel. The case for the plaintiff was that in April, 1900, the Sandown Urban District Council decided to have Wilton Road, Shanklin, sewered, levelled, metalled and put into proper repair. Plaintiff tendered for the work and obtained the contract, which was, he said, properly carried out under the supervision of the surveyor of the District Council and his clerk of the works. While it was proceeding the defendant wrote a letter to the District Council imputing that the contract was being carried out in a "barefaced scamping manner," and complained of a deficiency of ballast, &c. The Council enquired into the matter and found the complaint was groundless, but the defendant persisted in his allegation and resisted the payment of his proportion of the cost as frontager on the ground that the work was not properly executed, He was, however, ordered by the magistrates to pay the amount to which he was assessed, and on appeal to the King's Bench Division was unsuccessful. The letter was read at the Council meeting and made public, and had, the plaintiff said, done him a great deal of injury. Therefore he brought the present action.—The defendant pleaded that he wrote the letter *bonâ fide* as a ratepayer and frontager, and that therefore it was privileged. —The jury returned a verdict for the plaintiff, with £50 damages.

A Defective Lift: £200 Damages.—The case of *Porpa* v. *Marryatt and Another* came before the King's Bench Division of the High Court of Justice last week. The plaintiff sued the defendants, Messrs. Marryatt & Place, engineers, 28, Hatton Garden, to recover damages for personal injuries. It appeared that in July, 1901, a contract was entered into between the British Pure Ice Syndicate, Ltd., and the defendants for the construction at the company's premises at Sumner Street, E.C., of an electric lift and hauling machine for lifting a weight not exceeding 2 cwts. The lift did not at first work satisfactorily, and various alterations were made to it from time to time. On February 28th, 1902, a servant of the defendants, named Driver, was on the premises completing the alterations which had been necessary, and, according to the plaintiff's case, when the work was finished Driver invited him to enter the lift for the purpose of seeing that it worked satisfactorily. After some demur, the plaintiff assented and entered the lift and was carried to the top floor. The lift was taken to within 6in. of the floor, and then the rope on the drum broke, with the result that the cage fell to the bottom of the building and the plaintiff was seriously injured.—Defendants denied liability.—The jury found that the defendants negligently supplied a defective lift and failed to give the plaintiff notice of it; and that the plaintiff was not guilty of contributory negligence in using it They were unable to agree as to whether Driver asked the plaintiff to get into the lift, but stated that they believed that he permitted the plaintiff to enter it and worked it up and down. They assessed the damages sustained by the plaintiff at £200.

Charge of Fraud against an Architect.—In the Court of Appeal on January 19th the case of *Hope* v. *Stanbury Eardley* was disposed of. The plaintiff, Mr. Charles Hope, was a builder who sought to recover from the defendant, Mr. Ernest Stanbury Eardley, a balance alleged to be due under a building contract. The architect, Mr. Victor Scuton, it was alleged, had not given his certificate for the work which the plaintiff's claim had represented, and in order to maintain his case the plaintiff alleged that there was collusion between the building owner and the architect to keep back the certificate. The case came on for hearing before the learned Commissioner, and after it had been opened on behalf of the plaintiff he suggested that as is was merely a matter of account it should go before the official referee. The defendant now appealed from this order, on the ground that as the plaintiff had charged the defendant with collusion and fraud in connection with the architect he was entitled to have the action tried before a jury.—Lord Justice Romer said the court would allow the appeal. The case consisted of a charge of serious misconduct, not to say fraud, on the part of the defendant, because it suggested a want of good faith on his part—in fact, moral fraud. In his (Lord Justice Romer's) opinion this was a kind of question that the defendant had a right to ask the opinion of a jury upon, so that they might decide it. The appeal would be allowed. Judgment accordingly.

Bricks and Mortar.

Aphorism for the Week.

The Romanesque is allegorical of the Old Testament, as the Gothic is of the New. The parallel is exact. Is not the Bible, the inflexible book of Jehovah, the awful code of the Father, well expressed by the stern and penitential Romanesque; and the consoling, tender Gospel by the Gothic, full of effusiveness and invitation, full of humble hope?—J. K. Huysmans.

Our Plates. The church of St. Mary the Virgin, Oxford, was dedicated in Saxon times and was probably the most important in Oxford at that time. The mention, however, of a fresh dedication in the thirteenth century gives a reasonable belief that the old Saxon church was removed, or at any rate rebuilt. The oldest part of the present structure dates from the beginning of the fourteenth century, when the present tower and spire were built. The tower is of good proportions and rises directly from the ground to a height of 88ft. There are two large bar traceried windows, one near the ground and the other near the pierced balustrade at the top. An octagonal spire rises from this point to a height of 102ft., giving a total height of tower and spire of 190ft. The junction of the tower and spire is very beautifully graduated by a rich combination of canopied niches terminating in small finials, the niches being filled with figures. The whole spire is profusely covered with the ball-flower ornament. The Lady Chapel was built in the fourteenth century, but the windows have been replaced by Perpendicular ones, probably at the time the nave and choir were rebuilt. Towards the end of the fifteenth century the nave and choir were pulled down, as they had got into a ruinous condition, and were rebuilt about the year 1490. The plan of the church is very irregular and broad for its length. The nave is divided into a central and two side aisles. The choir consists of a central aisle only, of the same width as that in the nave. There are four doors in the nave—one at the west end, one at the north side and two on the south. The south-west door is of Early Renaissance character, but with a fan vault, and was erected in 1637 from the design of Inigo Jones. There are no transepts, but the tower occupies the position which the north transept would have had. The Lady Chapel is situated on the north side of the nave and against the tower, and the Old Congregation House occupies a similar position on the east side of the tower. The exterior of the church presents an almost uniform Late Perpendicular character: the windows have depressed Tudor arched heads. The balustrade at the eaves is of rich panelled Perpendicular character. The dimensions of the building are:—Nave, 95ft. long by 54ft. wide; choir, 75ft. long by 24ft. wide; Lady Chapel, 40ft. long by 23ft. wide; Old Congregation House, 43ft. long by 18ft. wide. The tower is 28 ft. sq. outside. The Perpendicular English doorway shown in Mr. Charles Forsyth's drawing forms the west entrance to the nave of the church.—The other doorway shown in Mr. Forsyth's measured drawing forms the entrance to the chapter-house of Glasgow Cathedral, and is of the purest Early English character, although the chapter-house itself is of the Decorated period in Scotland. An article on Glasgow Cathedral appeared in our issues for July 17th and 24th, 1901.—The choir of St. Mary's, Oxford, has lately under Mr. Jackson's directions had its interesting fifteenth-century stalls repaired and completed, and has otherwise been put into good and substantial order. The illustration reproduced shows a proposal for a new organ screen to replace the present close stone screen, which was put up when the whole church was refitted in 1827. The intention is to throw the choir more open to the nave, without removing the organ from its present dignified position on a loft between the two.

One of the Exceptions. It is very rarely that one finds a lucid article on architecture in the daily press, but we do find an instance of intelligent criticism now and again. "The Northern Whig" recently published an article on modern architecture which contained many good things. We extract the following:—"London and Paris have lately exchanged ideas, and both are pleased with their new architectural toys. Builders and decorators cross the Channel from this side. Our wives pine for at least one room of 'Empire' or 'Louis XVI.' inside our houses, and architects generally seem unable to resist the temptation of introducing a specimen of 'Old Dutch' somewhere on the outside. Enthusiastic citizens discuss the merits of any number of 'boulevards' to cut through slums and regenerate a 'submerged tenth' by the beauty of leafy avenues. Or they create bosky groves of green tubs, to show that their spirit is willing to make their town beautiful, and they are wishful to provide a refuge for the wild sparrow in the day and a prowling place for *felis domestica* at night. . . . It is of no use to persuade a John Bull, who has fixed his affection on the classic proportions of the Parthenon, to imitate his next door neighbour who has a strong but confusing liking for the horse-shoe arches of a Moorish Alhambra and the balconies of a Swiss châlet."

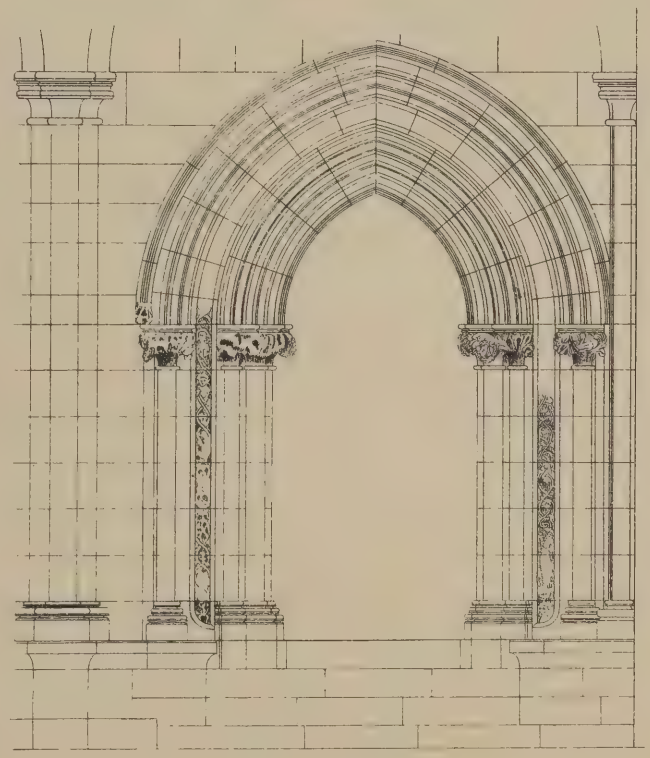
Preservation Societies. "There have lately sprung into existence innumerable societies for the preservation of ancient buildings. A cry of despair goes up from them at the downfall of any erection possessing a picturesque or historical old age. They wax eloquent over the barbarism of modern improvements, and they long for the inconveniences of any country but the one they live in. The more moderate of these societies use their members' subscriptions with discrimination, and earn the gratitude of all who take even the smallest interest in the many historical landmarks in brick and stone scattered about England in town and country. The more fanatical of them have little of the discretion which might make their extreme valour in attack of any use. If a building is old they take it for granted it is beautiful. They hear with indifference of an outbreak of typhoid or diphtheria in the district that has roused their enthusiasm by its antiquity. It is only

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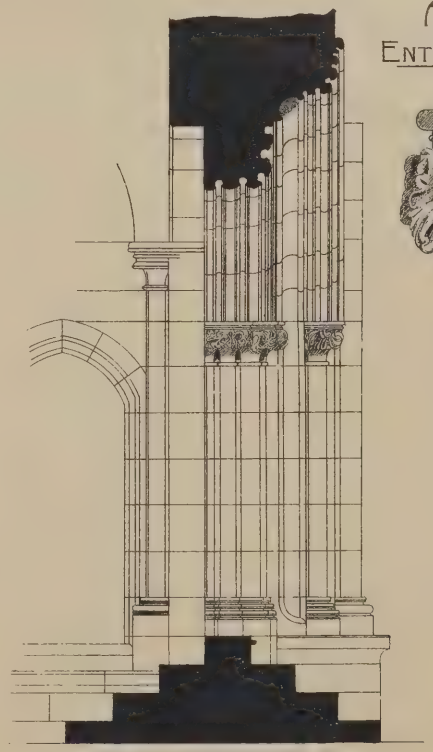
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AN EARLY ENGLISH DOORWAY.

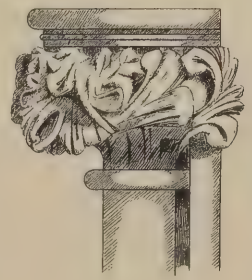
ENTRANCE TO CHAPTER HOUSE, GLASGOW CATHEDRAL



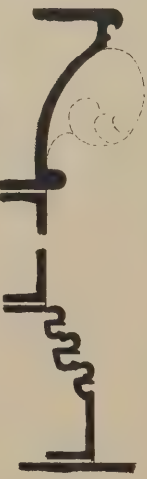
ELEVATION

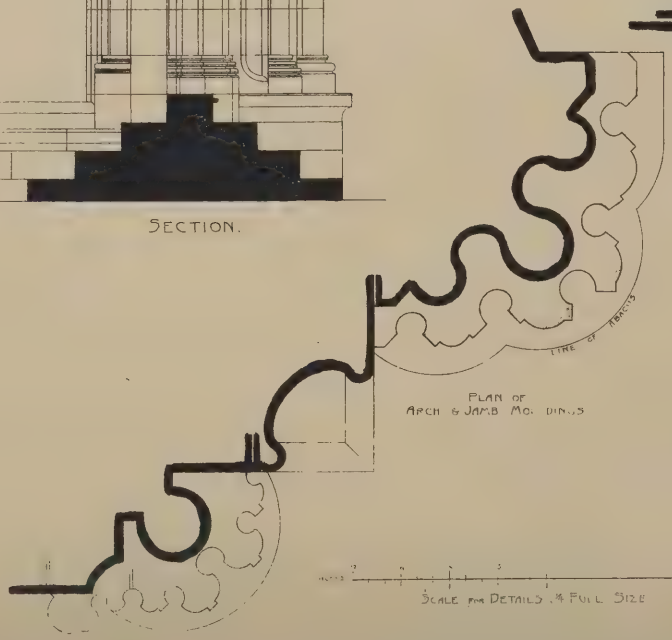


SECTION.



DETAIL OF A CAPITAL

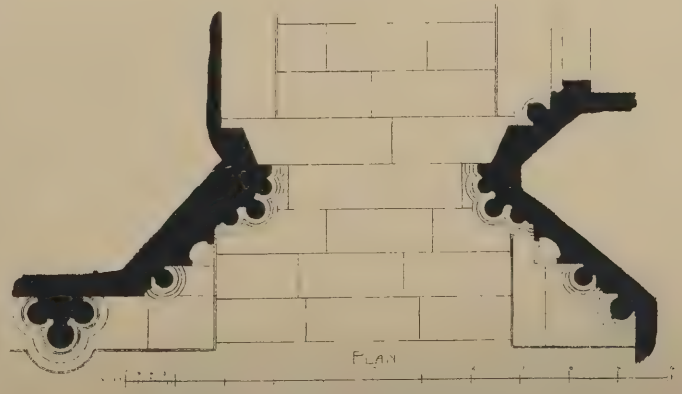




PLAN OF ARCH & JAMB MOULDINGS



DETAIL OF CARVING ON RIGHT JAMB OF DOOR



PLAN

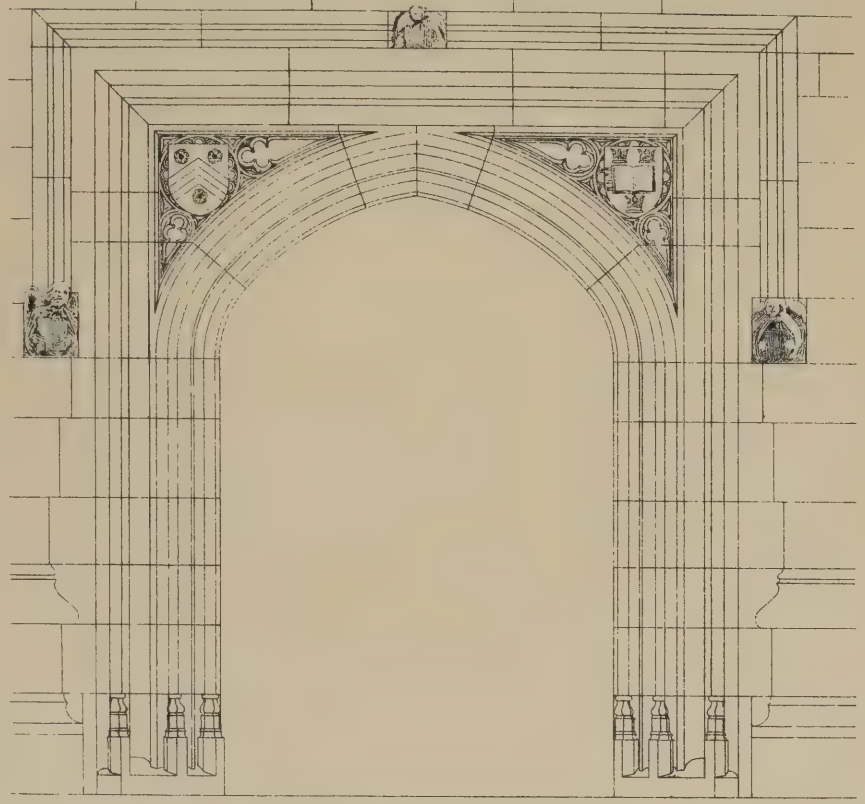
SCALE FOR DETAILS ¾ FULL SIZE

MEASURED AND DRAWN BY CHARLES FORSYTH.

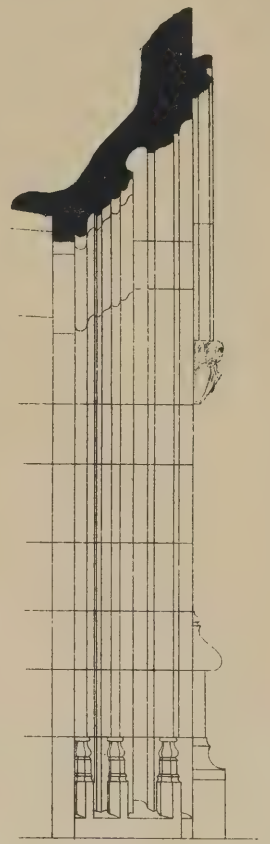
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A PERPENDICULAR DOORWAY.

WEST ENTRANCE TO ST MARY'S CHURCH, OXFORD.



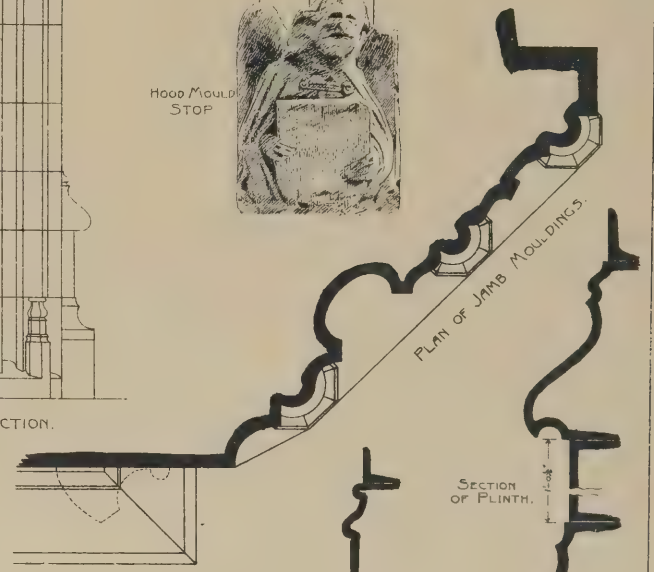
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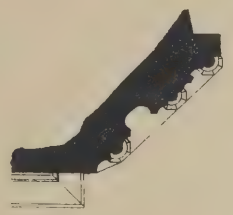


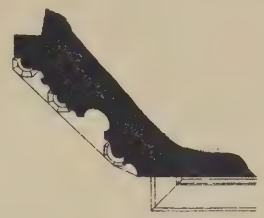
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DETAILS

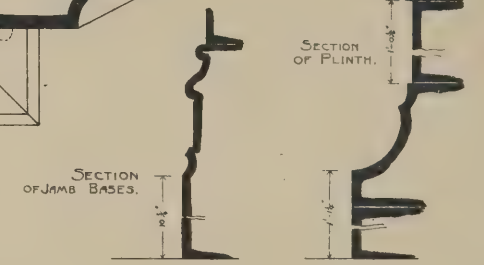








PLAN.



"INK-PHOTO" R. J. EVERETT & SONS, 58 LUDGATE HILL, E.C.

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DESIGN FOR AN ORGAN LOFT AND SCREEN IN THE CHURCH OF ST. MARY-THE-VIRGIN, OXFORD.
T. G. JACKSON, R.A., ARCHITECT.

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in their own houses they are alive to the necessity of a good water-supply and efficient drainage. They enthuse over the pictorial effect of a crooked chimney, if it has no connection with one of their own fireplaces. They go into raptures over the mediæval charms of cobble stones, oil lamps and open sewers. Supposing these enthusiasts had been able to start on a wildly artistic and victorious career a few thousand years earlier in the world's history, supposing by some unlikely chance the prehistoric wishes of their hearts were fulfilled, then to this day the tired Londoner would still be paddling his canoe across the swamps to his comfortable dwelling in Chelsea or Kensington, or fighting his way to his cave on Richmond Hill, after the day's work was over in the neighbourhood of the tumulus where now stands St. Paul's. Yet, in spite of all, even the most pessimistic of these societies must own we have advanced a little since the time a newly-built church presented to the sight an architectural mixture of music-hall and cotton mill in the good old days when one of the Georges set the fashion in art, and admitted, with strong German accent, that he cared neither for 'bainting nor boetry.'"

The City of Paris. M. Hillaire Belloc, in lecturing at the London Institution upon "The City of Paris," said Paris was the only city of which there was a continuous and exact history direct from the time of the decline of the Roman Empire. This could not be found to the same extent with any other Western city. Florence was very much a museum, and to some extent Rome was the same. Paris had been ably preserved from forgetfulness by documents. Wherever in the city excavations were made they were watched by an official appointed for the purpose, an intelligent and educated man who could understand what he saw laid bare. This work was carried on at a cost of not more than £4,000 or £5,000 a year. It had resulted in the last ten years in the discovery of the exact course of the whole of the Roman wall round the island which first enclosed the town. The growth of the city had been regular though rather slow; but the whole process had been regularly described and documented. A criminal at the Palais de Justice now stood upon the exact spot occupied by the Pretorium of the Roman era. Notre Dame stood within 15ft. of a Temple sacred to Jove in the time of Tiberius, and the ancient Basilica stood not more than a few yards from the same spot. If they stood at the top of the Rue St. Jacques they would see immense lines of light going nearly three miles before them, which was the old Roman road. They crossed the same now by a stone bridge which was built on the site of a wooden bridge crossed by Julius Cæsar. The French were ruthless in sweeping away the outward form of things. They wanted the city to be clean and fresh, if not entirely modern. Leonardo da Vinci was the first to think of this; Francis I. continued the work; he was followed in the same wish by Henri Quatre; Napoleon carried on the same idea; and Napoleon III. Haussmanised the city.

Memorial Bridge at Turin. It is proposed to construct a magnificent monumental bridge at Turin over the River Po as a memorial to the late King Humbert. The bridge will have three arches, and will be adorned by four groups of statuary representing various events in the late King Humbert's life and reign; the central arch will measure 51·20 mètres, and each of the lateral arches 25·60 mètres across. The breadth of the roadway on the top, not including the parapets, will be 22 mètres. The material used will be rough-hewn stone; the cost will amount to 1,800,000 lire, not including the groups of statuary, which will cost an additional sum of 300,000 lire. Four obelisks will present four bas-reliefs dealing with incidents in the life of the late monarch. Their bases will have four niches, in which will be carved four statues representing the four chief virtues of the late King Humbert, and at the entrances to the bridge will be placed four equestrian groups, each representing a horse kept in check by a Hercules.

ARCHITECTURAL ASSOCIATION.

The Architect and the Crafts.

By J. DUDLEY FORSYTH.

A MEETING of the Architectural Association was held at No. 9, Conduit Street, W., last Friday evening. Mr. Henry T. Hare presided. The following were elected members of the Association:—Messrs. George P. Bowie, Henry W. Sefton, Edward J. Walters, Herbert Read and Robert Falconer MacDonald. The following further donations to the New Premises Fund were announced:—H. Jarvis £10 10s., H. Sirr £1 1s., and R. C. T. Gordon 10s. 6d. Mr. J. Dudley Forsyth then read a paper on "The Attitude of the Architect towards the Crafts," of which the following is a summary:—

The question we so often omit to put to ourselves by reason of the familiarity of the term "crafts" is, What is the real meaning of the word, and how many of the applied arts are included in it? We may, I think, safely say sculpture, decorative painting, stained glass, mosaics, pottery, carving, plasterwork, enamels, textiles, wrought-iron work, furniture, and—though, perhaps, not strictly connected with architecture—printing and bookbinding.

In my opinion the word "craft" is an unfortunate one, inasmuch as it seems so difficult to dissociate its station and consequence from the word "art." A happier term for any of these crafts would be perhaps

"Applied Art,"

for they all are undoubtedly "art" when conforming to the true principles of decoration and possessing the qualities of sound technique and beauty of design. It may seem unnecessary to emphasize the point, but all the crafts I have mentioned, with the exception of the last two—printing and bookbinding—are distinctly "applied." I mean they are in a direct relationship to the building they adorn; are, in fact, part and parcel of its conception and completion. The fact is constantly forgotten that architecture is the mother of the applied arts, the parent from whom they spring, and not the stalking-horse on which the so-called "decorator" may hang his wares.

But the variety and complexity of these applied arts has naturally led to the evolution of the so-called "craftsman." In other words, the producer of these various arts is at the same time a designer and worker. He is therefore differentiated from the architect, who, in the multitude of his duties, cannot be a worker in the same sense that a craftsman can. He may, like many architects, take lessons in modelling, and therefore be the better able to direct and control the sculpture he employs on his building, but he does not and cannot take the place of the craftsman.

One mind should dominate

every building—I mean, the educated eye should be able to discern that the same master mind has subordinated every part, be it large or small, to make up the perfect and complete building. But the actual means of compassing this end is complicated by the fact that it is a physical impossibility for every architect—indeed, for almost any architect—to gain sufficient knowledge of all the varied materials at his disposal to enable him to design in them with that grasp which the craftsman must have. It seems, therefore, that while the architect must know the limitations of the various materials he employs, and must have a general knowledge of the methods of the craftsman in that material, he must perforce leave the actual expression to the craftsman himself.

The multiplicity and variety of materials now at the disposal of both designer and manufacturer seem to invite their free use, and many excuses are found for their adaptation. A supposed opportunity is found for the use of this or that material. The cheapness of its production will permit of a space being decorated which otherwise would have remained bare. The character and style of such decoration is too often misapplied, and instead of securing a refined and pure adornment to that space it is rendered tawdry and incongruous. It would have been much richer in its bareness.

Such results strike a harsh note; they disturb the harmony of refined work, and vex the soul of the conscientious student who by his training and gifts knows that if such work and money had been expended with proper direction and knowledge a far better result could have been obtained. They must surely also exert a harmful influence upon the good judgment and taste of the public, which, ignorant as it is, mistakes elaboration for beauty and misapplied decoration for art.

It should be the aim of all of us to eliminate this misapplication, to bring architect and craftsman into more complete harmony, so that each may realise that under the stress of modern conditions each must work conjointly with the other, never forgetting that the part must in all cases be subordinated to the whole.

Let us briefly review the province of the architect. The study and practice of architecture in this twentieth century may without any hesitation be said to be one of the most intricate and difficult of professions, added to which there is that indefinite, indefinable something, be it ever so simple, which distinguishes architecture from mere building.

There are so many different branches of study, so many different and new materials to gain a knowledge of, so much to be learnt from both past and present, that the architect is really a student all his life.

The Architect's Part in the Decoration

of a building is a large one, for he must, in my opinion, be able to direct the subjects and their general proportions and styles. He must be able in designing his building to introduce the various arts for its adornment in places where their introduction will materially assist it, supposing such ornament is not merely the enriching of constructional features, such as the way in which sculpture is often employed, but is only to emphasize the meaning and purpose of the building.

The value of an imposing group of sculpture, the use of other carving, the colour schemes and the kind of materials for their production, the value and use of frescoes and the styles and subjects of them, the treatment of glass, must all be under his direction, and he should know how each is to be treated and made one with the architecture of his building. The architect will know that in introducing his group of sculpture the elevation of his building can be either very materially enriched or ruined. He will, therefore, direct the exact scale of figure, a certain line in its composition and the breadth of treatment necessary for its value. The sculpture becomes part and parcel of his architecture, and for that purpose must be architecturally treated; it must have no appearance of being foreign to the general scheme, or of something just modelled and

placed there, irrespective of architectural proportions. Therefore the architect alone can know what is best required upon these lines for the adornment of his building. These conditions similarly apply to most of the decorative art, which must be considered

Architectural Adornments.

In mosaics and painted panels, frescoes and other features utility, style, scale, line and the proportions of general massing of colour and subject are the fundamental points to be studied, and the direction of them must come within the province of the architect. He should convey his ideas of them to the decorator by means of rough sketches.

Given that an existing building requires decorating: if that building is of considerable consequence because of its purity and refinement of style, and the architect who produced it was a famous man, it should be an architect's province to direct the character and style of the necessary decoration, because only an architect who has made that style his especial study, and whose experience in construction enables him to appreciate and follow the beautiful characteristics in that style, and who has paid particular attention and studied the individuality of that famous man, can be competent to know the best decorations for it. Even then there is danger in touching the building.

Let us now glance over

The Province of the Decorator,

and under that name I include the sculptor and painter and all other workers in the applied arts. Like architecture, decoration covers a very wide field—a field which should have a boundary line marked by an architectural wall to prevent decorators straying from within its precincts into unknown spheres. The decorator usually commences his career by serving a term of years at a special craft in which he obtains a thorough technical grounding. As a sculptor he becomes an expert in modelling and carving, and is able to execute commissions for figures in various materials, including bronze. His province in this art allows him considerable scope and freedom, but in carrying out his commission too much freedom cannot be allowed, for he would doubtless be running amok with the architect for whom the figures are being carried out. He will receive general instructions as to scale, breadth of treatment and other views of the architect, all of which are necessary to render his work strictly architectural and to be in harmony with the building. It is the decorator's province to execute the commission on these lines. Experience and efficiency in his own particular material aid him in actually producing the work, and here the architect will not presume to direct. The decorator—if he be a painter—will receive similar directions from the architect, and to him are allotted conditions comprising subject, scale and general scheme of colouring. It is not his province to choose these, because he cannot possess another man's individuality and cannot therefore be competent to know the character and style for the decoration such as were originally intended by the architect. In a case where, given a free hand

To Decorate a Renaissance Building,

good or bad as it might be, the decorator is very apt, for many reasons, to go wrong. It may happen that his experiences as a painter of architectural decorations have been mainly confined to the Gothic school; and no matter how skilful he might be as a draughtsman or colourist, the influence of the Gothic is bound to make itself manifest in his work, and even the rudiments of subject, scale and general scheme of colouring in a Renaissance decoration will not be grasped by him, and a poor scheme will result unless he independently seeks the advice of a competent architect. The painter may be a man who prefers to ignore character and style, and go for something which is quite the outcome of his own invention and fanciful ideas. Then, provided the building he is to decorate be one which glories in the beauties of a pure order, and as such is a represeutative example, the result of his labour is deplorable and the building spoilt. The decorator here who is inexperienced in architecture, as is often the case, will do many foolish things, and unwillingly quite disregard obvious conditions existing in the main and various details in the construction of the building.

His own invention of style and fanciful ideas of colour and material cannot lend themselves to be in perfect harmony with this beautiful building. Some of the most delicate features in its architecture, characteristic mouldings, valuable flat surfaces—which were probably never intended to receive much if any colour—will all come in for their share of his paint brush or be chiselled away to receive some incongruous and foreign material. A free hand in a case of this kind should not come within the province of the decorator, even though his knowledge of and respect for architecture be recognised as experienced. An architect should supervise, but only the united and harmonious endeavours of both will produce true results.

The Attitude of the Architect

towards the crafts is a difficult one. He in turn is apt to stray in the utilisation of this or that craft for the want of technical information. Therefore I think his study of decorative arts should not be neglected, for it is very necessary; also that his studies ought to be confined more to the technical side of them rather than contriving to excel in the artistic productions of draughtsmanship, and I venture to express the hope that such technical studies will be set the students in the Architectural Association's new school. On the other hand, I suggest that the decorator, in his early studentship and in later life, does not give that thought and study he should to architecture which is so important for his work. The attitude of the architect should be one of collaboration with the decorator. He cannot possess the sound grasp of technicalities of all the decorative arts which he should have, as I have attempted to show, for the complexity of work of all kinds in his profession renders it impossible. He must have confidence in his decorative artist. I would plead for the more intimate relationship between them, that one shall become used to the methods and feelings of the other. In the production of a noble conception in the art of architecture harmony and goodwill must pervade the minds of the producers. Each must be familiar with the taste and ideas of the other. The architect who conceives the noble idea must extent personal feelings of consideration to the workers who are to build it up, so that they feel their efforts encouraged and their labours appreciated. Their mutual and friendly efforts will produce happy results, and the structure in stability will be established and in the refinement of beauty adorned.

Discussion.

Mr. Halsey Ricardo thought it was an impossible position which was placed before them; according to the standard set up in the paper it seemed impossible that anyone could be an architect. It showed, as other papers had done, a very disconnected and disordered state of affairs. Mr. Forsyth had given away the so-called "applied arts" absolutely. There had been several kinds of architecture. The Grecian was a sculptor's architecture, and always before the sculptor's eyes was a Parthenon which he wanted to reproduce. This we had in the British Museum. Then we came to mediæval architecture, which he believed we mostly had in our minds when we spoke of architecture. The lecturer had stated that architecture was the mother of those arts, but if that were so she were only the adopted mother, for long before she had come into sway the other arts were supplying wants. We were at this present moment in the exercise of an architecture of organised scholarship; we were prolonging a thing which has reached its climax. Popular enthusiasm which was once the husband of architecture was now wedded to science; and though now and again we had popular sculpture and popular painting, for the most part art was an exotic. We had got a something which we called scholarly architecture, but it had no real life.

Mr. Weymouth seconded the vote of thanks to the lecturer, and Mr. Gregory Collins, Mr. W. A. Pite and Mr. C. Tucker also spoke.

Mr. Henry T. Hare in putting the vote said there had been during the last few years a great revival in the crafts, and there was a tendency for the crafts to be given more importance than they ought to have. Many buildings one saw nowadays had no architecture in them but all craftsmanship. He thought Mr. Forsyth's suggestion that all the work should be directed by one man was a valuable one.

Mr. Forsyth briefly replied.

Builders' Notes.

The Bristol Master-Builders' Association held its annual meeting last week, Mr. George Wilkins presiding. Mr. A. Dowling was elected president for the year and Mr. E. Neale vice-president.

Lockwood's Builder's and Contractor's Price Book, 1903.—The annual edition of this invaluable book of reference has just been published, price 4s., by Messrs. Crosby Lockwood & Son, 7, Stationers' Hall Court, Ludgate Hill, E.C.

Fletcher's "Measuring." — The seventh edition of the text-book by the late Professor Banister Fletcher on "The Practice of Measuring Builders' Work" is about to be published by Mr. B. T. Batsford. The book has been revised throughout by Mr. H. Banister Fletcher, the author's son.

The Irish Master-Builder's Association held its annual meeting recently, when the following officers were elected:—President, James Beckett; hon. treasurer, James Kiernan; hon. secretary, John Good, 55, Great Brunswick Street, Dublin; committee, R. Denne Bolton, Thomas Conolly, W. Goley, Thomas Mackey, W. Meade, H. Pemberton, E. Warren, B. W. Whyte.

Messrs. Lockerbie & Wilkinson, Ltd., of Station Street, Birmingham (London office, 109, Victoria Street, S.W.), have just issued a new card showing designs for pipe-heads. We have already drawn attention to the fact that the firm commissions well-known architects to furnish them with such designs, and this new series includes several which are very pleasing—which is only to be expected when they are by Mr. Quennell, Mr. Nicholson, Mr. Robson and similarly-talented men.

London County Council.—At last week's meeting Mr. Stuart Sankey presented a petition from the ratepayers of the Urban District Council of Ilford asking the Council not to agree to the purchase of Hainault Forest. Considerable discussion ensued, but eventually the Committee's recommendation was adopted.—The Highways Committee reported that they had entered into a contract with Messrs. P. & W. Maclellan, Ltd., of Glasgow, for the supply of rails for the Council's tramways for £33,876. It was stated that the rails would be obtained from the Société Anonyme des Acieries d'Anglem, Begium.

Views and Reviews.

A Liverpool Cathedral Scheme.

This little booklet comprises a sermon by the Dean of Ely (Dr. Stubbs) on "The Place of a Cathedral in City Life," letters to the "Liverpool Post" on the cathedral scheme, and—what seems to be the main object of the pamphlet—an eulogy of a design by Mr. E. A. Heffer for Liverpool Cathedral. The first does not concern us now, and the second and third are correlative. From what he says we assume the Dean knows more about architecture than the majority of his brethren. He has a scheme for the cathedral which seems to be an adaptation of his own Ely, and this scheme, modified in certain particulars, is introduced in Mr. Heffer's design. It is to be hoped that not everyone who made a design for Liverpool Cathedral will publish it in pamphlet form, but the Dean has this to say—"Owing to an unfortunate misunderstanding as to the meaning of the circular issued to architects in the late cathedral competition, Mr. Heffer as a competitor did not submit to the committee his present design, although he had already been working upon it for some months. He was not therefore among those architects chosen by the Committee's assessors, Messrs. Bodley and Norman Shaw, for the final competition. I am sure, however, that no comparison with the designs of those architects placed by the assessors in the first class is needed to convince any one who has any pretence to architectural knowledge or artistic taste . . . . that Mr. Heffer has produced a cathedral plan which, for originality of design, nobility of proportion, skill in mass, grouping, and general beauty of outline, is worthy of the very best traditions of the old English master builders . . ." The scheme, being half his own and reminiscent of Ely, naturally pleases Dean Stubbs, but we cannot ourselves be so absolutely certain of its surprising excellence. To go into the whole matter would occupy too much space and serve no general purpose; but we may briefly say that the plan has a great octagon with a very short nave on the west and a similar arm on the east containing the altar and the choir, while north and south (the long way of the site, it will be remembered) run great transepts. There is something to be said for this arrangement—it secures the proper orientation—but we cannot regard the scheme with such admiration as the Dean; and we fail to see why he should have published this pamphlet about it.

"Liverpool Cathedral: St. Nicholas on the Mount," by Charles William Stubbs, D.D., Dean of Ely. Liverpool: Gilbert G. Walmsley, 50, Lord Street. Price 6d. nett.

Men of Italy.

It is not long since Sir Martin Conway published his book on "The Domain of Art," which, after an interval of notable mountain-climbing and voyaging, again brought him forward as a critic of art. This latest book of his deals with a well-worn subject—indeed, it is amazing to think of all the books on Italian art which an unartistic age can produce. But art is not a thing to be finally disposed of by one man—be he Hogarth, Reynolds, Ruskin or Stevenson—would it were—and so it happens that the various views of different critics find escape into a world of books. There is no limit to what can be said about art, even though later writings may be mere repetitions—sometimes weak echoes—of what earlier writers have said. Think, as a case in point, of the unmeasurable amount of criticism, explanation and description about early Tuscan art, the influence of Byzantium, the rise of the early Italian sculptors, and the painters who followed—all of which Sir Martin Conway again revives. There is, of course, always a growing section of the public who desire and need to know of these early artists and their work, and there is, too, that mixed body of critics whose business it is to agree and disagree with every new book or picture. To such Sir Martin's book will be of interest. It is certainly very lucidly written and logical in its conclusions, and there are modern touches in it which show that the writer is not buried in the past. Architecture is well handled, and for this reason we are glad to bring the book to the notice of our readers.

Byzantine art comes first under consideration, and the author observes that most people are accustomed to associate the name with bad old paintings, late—even modern—Greek devotional objects, and mosaics which have been repeatedly restored; but if the reader could be planted in the nave of St. Mark's at Venice and there see the gilded bas relief of the Virgin, immured just to the left of the entrance, "he would learn in a moment of what benign beauty and dignified grace Byzantine sculptors were capable." Italy naturally felt the Byzantine influence more strongly than any other country, and in its first stage of artistic renaissance Greek artists were brought from Byzantium by the nobles who were then the dominant factor. Sir Martin explains how, under such conditions, the buildings of Pisa, Lucca, Florence and other north Italian cities arose. Then follow chapters on Niccolo Pisano and his pupils, and so on. Francis of Assisi and the popular revolution of which he was the centre in the twelfth century are very adequately dealt with, and the famous paintings of his life are described; and how they set on foot a new art of fresco and wall painting, crude at first, and afterwards made immortal by the hands of Cimabue, Giotto, "Simon, the Sienese," until in the last chapter we are dealing with that gentle artist Fra Angelico. The story, though a familiar one, is told with interest, and there is not much ultra-controversial matter; so that the reader is left with a clear impression of those men who made the early art of Tuscany.

"Early Tuscan Art, from the Twelfth to the Fifteenth Centuries," by Sir W. Martin Conway. London: Hurst & Blackett, Ltd., 13, Great Marlborough Street, W. Price 7s. 6d. nett.

A New Method of Perspective.

It is surprising that the idea contained in this publication has never been carried out before—it is so simple and useful. The method is as follows:—A series of diagrams of ruled lines in the nature of a screen, the spaces representing equal divisions seen in perspective, are provided different diagrams being given from ordinary point of view. The only thing necessary to get a correct perspective from these set points of view is to take plans and elevations and mark off on transparent paper laid over these diagrams the dimensions measured in the spaces of the diagrams, which are drawn to ¼in. scale, each space representing 1ft. in height and 2ft. in width. The diagrams have the angle nearest to the eye and the eye level (5ft. from the ground) marked, and they can be equally used for sketching direct from objects by estimating the sizes of the parts approximately, standing at the right angle away at a distance about three times the height of the object. It is a tedious job to get out a correct perspective sketch by the usual method of T-squares, station and vanishing points, and it is also a difficult thing for artists to sketch a building quickly in correct perspective, but by this method all is rendered simple and will save an immense amount of time. A student applying the system will learn the elements of the science at once without long study of books. This publication consists of Reeves No. 3 Press Sketch-Book, which is of transparent paper, and a packet of diagrams to its size. Seven diagrams from different points of view are given. The author is a Fellow of the Royal Institute of British Architects. Large diagrams for office use are in preparation, and will be sold by Mr. B. T. Batsford, 94, High Holborn, W.C.

"R's Method: Perspective at Sight." Published by G. H. Tyndall, The Minster, Ely; Reeves & Sons, Ltd., 4, Farringdon Avenue, London, E.C. Price 2s. 6d. nett.

EDINBURGH ARCHITECTURAL ASSOCIATION.

At last week's meeting of this Association (Mr. A. Hunter Crawford, president, in the chair), Mr. J. A. Gotch, F.S.A., F.R.I.B.A., delivered a lecture on "The Homes of Queen Elizabeth's Courtiers." In the time of Elizabeth, he said, there was a prevalent desire for better homes, partly arising from what people saw abroad and partly arising from an increased desire for comfort and the presence of considerable wealth derived from the dissolved monasteries. These causes led to an extraordinary amount of building in the sixteenth century, and probably every village in England had some remains of work done in the time of Elizabeth or James. The characteristics of the architecture of the period were largely influenced by what people had seen abroad, and especially in Italy. It was the Italian influence which characterised the work of this time, and the peculiarity of Elizabethan architecture was that English workmen adopted Italian ideas in buildings which really had a Gothic ancestry. The essence of a house was in its plan, and the planning of Elizabethan houses was a matter of great interest. They provided for the increased wants of the time, but they did it, as a rule, in a stately manner and in a manner that was very much influenced by symmetry. In fact, to this quality of symmetry a good deal of what they at present should consider comfort was sacrificed. Another peculiarity of the time was the quaintness in design. This quaintness sometimes even affected the plan itself, as in the case of the Triangular Lodge at Rushton, which embodied the idea of the Trinity, and the new building at Lyveden, which embodied the idea of the Passion. There was also a plan extant of a house designed by John Thorpe in the shape of his initials, J. T. The lecturer described the general arrangements of Elizabethan houses, and the methods of design, pointing out that a design was not produced by a single architect as in the present day, but by a number of designers in various trades working in harmony, and proceeded to deal with the external appearance of the houses, their surroundings, their internal appearance, and the treatment of the interior in the various departments of walls, ceilings, staircases, &c.

Scottish Domestic Detail.

The Associate Section of the Edinburgh Architectural Association held a meeting on Wednesday, January 14th, in the rooms, 117, George Street, Edinburgh. Mr. J. Douglas Traill occupied the chair. Mr. Ramsay Traquair, A.R.I.B.A., read a paper on "Scottish Domestic Detail." In the course of his paper Mr. Traquair dwelt upon the importance of detail to domestic work, and pointed out the necessity for simplicity in design. He also touched upon the method of study for old work and the application of this study in our designs. The paper was illustrated by an excellent series of photographs specially taken for this lecture, and in showing these the lecturer pointed out the entire absence of fuss or unnecessary detail, and showed that there was no striving after "effect." Attention was drawn to the manner in which accidental features were taken advantage of in the old work.

R.I.B.A. COMPETITION DESIGNS.

THE designs submitted in the competitions of the Royal Institute of British Architects form a very good collection this year, and include many which show great promise. The Soane is always the most interesting. This time the subject set was a town church on a corner site, with entrances from two sides only, and of the twenty-one designs exhibited there is nothing more noticeable than their general resemblance to Westminster Cathedral. That seems to have been the model to which most competitors went for their ideas, and in a few instances the adaptation of parts of Bentley's great fabric has been carried out with an astonishing exactitude. Students, indeed, are very apt to "crib," and that human failing they sometimes perpetuate throughout their whole career. True, there are extenuating circumstances in some cases, and with so great a personality as Bentley they doubtless found it hard to avoid copying him. Remembering this, one is not surprised at such a general use of towering masses of brickwork, towers and turrets, and window tracery of a Byzantine character, domes, and other features so noticeable in Westminster Cathedral. The winning design, by Mr. E. F. Reynolds, is certainly very commanding in effect, and the plan shows that much thought has been given to it. The great semi-circular western window is admirable and its tracery most delightful in design, while the massing of the building as a whole is good and exhibits much freshness in treatment. The drawings themselves are splendid specimens of draughtsmanship. Bricks 9in. by 4½in. by 1in., of rough texture and varying colour, with ⅓in. mortar joints, are proposed to be used. Sittings are provided for 1,017 worshippers. Beneath the altar is an assembly-room. Altogether this design is one we should like to see carried out. Of the other Soane designs, we were not particularly pleased with Mr. Mears's nor with Mr. Wontner Smith's, both of which were awarded a medal of merit (the latter is a Gothic design on familiar lines). The design by "Fides" masses up well and is in good proportion; that by "New Era" has two towers at each side of the end façade which stretch up 250ft.—a very striking design, but in no small measure due to the very skilful perspective, which is astonishingly alive with colour; and "Fioretto," which has a rather pleasing tower.

The Tite prize has drawn together a very fair collection of fourteen designs for a pavilion in a public garden. The winning design, by Mr. David Smith, is decidedly the best, and its provision of a central hall 208ft. by 55ft. is generous enough: moreover the arrangement of the various adjoining rooms is good. The design by "Queen of Hearts" is very pleasing—it is not unlike the Trocadero at Paris—and "Le Nord" is also commendable. It is worth noting that several competitors provide a recessed bandstand with a coved ceiling: there is nothing new in the arrangement, but it is one which might be more often adopted.

Mr. J. B. Fulton's Grissell design for a stone dome over a porte-cochère to a large public hall is by far the best.

The Pugin drawings are not good as a whole—some of them are very inferior—and the measured drawings submitted for the Institute medal are no better.

But taking the drawings all together, as we have already remarked they form a meritorious collection. They are on exhibition at the Alpine Gallery (entrance from Mill Street, Conduit Street, W.) up to and including Saturday next—from 10 to 8.

Correspondence.

Chepping Wycombe Municipal Buildings Competition.

To the Editor of THE BUILDERS' JOURNAL.

LONDON,

SIR,—The conditions for this competition contain the following clause: "The President of the Royal Institute of British Architects, or some other architect to be nominated by him, will be asked to make these awards according to his judgment; but the Corporation do not undertake to carry out any designs, and reserve the right to select for erection any set of designs (whether awarded a premium or not) they may themselves prefer." The president of the Royal Institute of British Architects requests that you will kindly allow him through your columns to inform those concerned in the competition that, as he understands the promoters decline to modify this clause, he has been unable to nominate an assessor.—Yours truly,

W. J. LOCKE,
Secretary R.I.B.A.

"In the Welsh Marches."

To the Editor of THE BUILDERS' JOURNAL.

LONDON, W.C.

SIR,—I am glad to learn from Mr. George Hornblower's letter in your issue for January 7th that Mr. C. G. Harper has discovered Wales and has been good enough to introduce your readers to what he (Mr. Hornblower) condescendingly calls "an extremely interesting section of Britain." Permit me to point out that the Principality is not such a *terra incognita* as Mr. Hornblower seems to imagine. The churches of Clynnog Fawr in Carnarvonshire and Llaneilian in Anglesea have been fully described and illustrated in the back volumes of the "Archæologia Cambrensis"; and if he will take the trouble of studying that fascinating publication at his leisure he will then realise how much is known by the man in the street of which a Fellow of the Royal Institute of British Architects may be ignorant of, yet not ashamed.—Yours truly,

J. ROMILLY ALLEN, F.S.A.
Editor of the Journal of the Cambrian Archæological Association.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—Your journal, I take it, is intended primarily for architects, whom I may perhaps define as *archæologists in action.*

Surely therefore it was but a venial offence my supplementing Mr. Harper's recommendation of the Welsh Marches as a field for architectural study by the further recommendation of "Wales proper" to the notice of students.

Though not an absolute novice in matters archæological, I freely confess that I am not conversant with the "Archæologia Cambrensis," though I have not the smallest doubt that, as Mr. Romilly Allen says, I should find it a "fascinating publication."

As Mr. Allen is the editor of the "Archæologia Cambrensis," one can hardly expect him to have any but natural feelings of affection for his *protégé*. Archæological Transactions, however, are hardly the works to which architectural students would be referred, for they would generally seek in vain therein for those careful delineations from measurement or otherwise of such portions of the noted buildings of antiquity as would stand them in much stead.

In saying this I do not wish to be misunderstood. Archæology in every department has always had the greatest fascination for me, even though a Fellow of the Royal Institute of British Architects; and may I point out to Mr. Allen that our Institute comprises among its members archæologists, such as Mr. Penrose, of the very first rank.

According to "Who's Who" Mr. Romilly Allen's "recreation" at one time took the form of "collecting strange oaths on golf links wherewith to address scorching cyclists in a suitable manner when occasion requires." If this be a statement of fact, I should at least be thankful that comparatively moderate language has been thought enough in my case.

Can it be that Mr. Allen—worn out possibly with the pursuit of the nimble unsuspecting golfer, and shocked it may be by the too lurid conversation occasionally overheard on the links—can it be that he is perchance now turning his attention to us already too-much harassed architects? *Absit omen!*—Yours truly,

GEORGE HORNBLOWER, F.R.I.B.A.

Old Brass Lecterns.

To the Editor of THE BUILDERS' JOURNAL.

EXETER.

SIR,—An excellent drawing to scale, with sections of mouldings quarter full-size, of the fifteenth-century eagle lectern at Oundle Church will be found in "The Churches of the Nene Valley," by Sharpe, Johnson & Kersey (1880). The stem is circular throughout, and at the base are three seated lions. The bird itself has its head erect upon the top of a very long neck. The accompanying letterpress says: "The design is extremely good and the mouldings of delicate character. There are several in England of similar form, so it may be well imagined there was a workman famous for them. The eagle's claws, which were probably of silver, are missing."—Yours truly, HARRY HEMS.

COMPETITION REFORM SOCIETY.

THE first annual report of this Society for the year ending December 31st last gives a list of nineteen competitions in regard to which action was taken by the Committee, in several cases with good results. Soon after the Society was formed it was found desirable to avoid taking any action which might clash with the doings of the Competitions Committee of the Royal Institute of British Architects; and an arrangement was therefore made that all communications with promoters of competitions should be made through Mr. Locke, the secretary of the R.I.B.A. Mr. Locke has taken up the cause with great zeal, and the Committee desires to express its grateful appreciation of his services.

With a view of securing the co-operation of architects practising in the provinces, the various provincial architectural societies were communicated with and each was solicited to nominate two of its members to represent this Society in their respective districts. The matter was not taken up as earnestly as had been hoped. Many expressions of sympathy were received, and statements came from several of the societies which are allied to the R.I.B.A. to the effect that they feared to compromise their relations with that body if they acceded to the request. The Birmingham Architectural Association has appointed Mr. A. Harrison, F.R.I.B.A., and Mr. C. E. Bateman, F.R.I.B.A., as representatives; the services of these gentlemen have proved how much the work of the Society will be assisted and encouraged when other provincial bodies have so far outgrown their fears as to follow the example of the Birmingham A.A. The Society now numbers sixty-nine members.

The statement of account shows a deficit of £6 18s. 11d., which has been met by several members of the Committee, but it is hoped that this year's finances will put matters in a sound condition.

LIVERPOOL BUILDING BY-LAWS.

At a meeting of the Liverpool Architectural Society last week, Mr. W. E. Willink presiding, a discussion was held on the Liverpool Corporation Act of 1902. The Liverpool City building surveyor (Mr. William Goldstraw) introduced the subject. The by-laws in question, Mr. Goldstraw remarked, gave amended powers as to streets and buildings. He pointed out that one of the most important sections of the Act gave the Corporation the power to increase the width of new streets. Where the Corporation considered any new street to be a main thoroughfare or a main approach to the city they were now empowered to make it a maximum width of 85ft. between buildings, instead of 36ft. The object of this was to obviate the danger of having to pay heavy compensation in years to come. It was obvious that if they allowed the streets to be made 36ft. between buildings, and the necessity subsequently arose to widen the thoroughfare and set back the buildings, very large amounts would have to be paid for compensation. In cases where a width of 80ft. was insisted upon the Act gave the Corporation power to pay any reasonable compensation. It was also stipulated that no new houses were to be built on new estates before the street had been laid out with a proper foundation and had been sewered, kerbed and channelled, besides which the Corporation might require persons laying out estates to alter the proposed direction or position of any street and pay compensation. The Corporation were further empowered to require that the corner of a new building situated at the corner of two streets be rounded off or splayed off to the height of the first storey or more, in which case they might pay compensation. Where compensation was to be paid, if it was found that the improvement would be for the benefit of the owner of the building as well as the public, the arbitrator could take account of that and apply the principle of betterment.

Another important provision related to the height of chimneys of manufactories and other similar buildings. Formerly the only question as to the construction of these chimneys was that of stability. A chimney might be of sufficient stability and yet be a nuisance to neighbouring buildings. Where the owner of such chimney was summoned and fined for a nuisance, and ordered to have the chimney raised, it might frequently happen that the existing chimney was not strong enough to allow of its being raised, and in order to avoid this the revised by-laws provided that such chimneys must in future be of such a height as the Corporation may require, having regard to the neighbouring buildings. Hitherto blocks of workingmen's dwellings had had to be designed in accordance with the rule for ordinary dwellings, but the Corporation could now relax or modify the building regulations on condition that the medical officer of health, the city engineer, and the city building surveyor certify that sufficient provision is made for air-space and ventilation. The first building to be dealt with under this new provision was the Workingmen's Home, Bovington Bush, where a very large addition was now being made to the premises. A section of the new Act also dealt with the nuisance caused by posts placed in or near the kerbstone to support awnings which stretched across the footway. These were particularly noticeable in front of places of business in Church Street and Queen's Square. There was a statutory power allowing owners to put the awnings in that fashion, but that power had been repealed, so that in future the nuisance in question could not happen. Another street nuisance would be done away with by the occupiers of shops and offices being made liable to place all the refuse from their respective places of business in dust-boxes provided by the Corporation. Referring to the new powers as to drainage by-laws Mr. Goldstraw said in the past, where an owner, contractor, and sub-contractor were concerned, it had been difficult to discover who was personally responsible for bad workmanship in the construction of drains; but in future if a w.c. or a drain was so constructed as to be a nuisance or injurious to health the person who had so constructed it was liable to a penalty not exceeding £20 unless he could prove that it was not due to any wilful neglect or default. The section also carried the principle further by making the workman liable.

Mr. J. Woolfall first spoke in the discussion. Mr. Middleton Shallcross said it was a matter for congratulation that building surveyors throughout the country seemed in practical accord as to the necessity for the reform of the Public Health Acts affecting building by-laws. Mr. Grayson, in proposing a vote of thanks to Mr. Goldstraw, said it was advisable that great discretionary power should be given to officials like the building surveyor of Liverpool. Mr. Eccles seconded. The chairman remarked that it was only advisable to give discretionary power where the officials could be implicitly relied upon.



DRAWN BY GEORGE C. HAITÉ, P.R.B.A.

Keystones.

The Parish Church at Surfleet, near Spalding, is to be restored.

The Sanitary Institute will hold its twenty-first Congress and Exhibition at Bradford, commencing July 7th.

A new Post-Office at Dalbeattie, N.B., is being erected of Dalbeattie grey granite, having half-timbered gables, green slate roofs and red terra-cotta ridges. The cost will be about £1,200, and the architect is Mr. J. A. Macgregor, of Castle Douglas.

Alterations to Business Premises in Aberdeen.—Extensive alterations are shortly to be commenced on the business premises of Messrs. Watt & Grant, silk mercers, 221, 225, 227, Union Street, 1, 2 and 3, Dee Street, and 2 and 6, Langstane Place, Aberdeen. The plans have been prepared by Mr. Arthur H. L. Mackinnon, A.R.I.B.A., of Aberdeen.

Improvements at Frogmore.—Last week the King visited Frogmore Gardens, and inspected some buildings which have been completed since his last visit to Windsor. A large substantial house has been erected for the accommodation of twenty-four young unmarried gardeners. The huge palm house in the grounds has been converted into a luncheon and tea hall for large parties in the summer.

Luxurious Baths at Camberwell.—The Camberwell Borough Council are taking steps to provide municipal baths for the Old Kent Road district at a proposed cost of £55,787. In addition to the ordinary baths, slipper, swimming, &c., the plans provide for Turkish and Russian baths—a new departure in municipal undertakings of the kind. A site has been obtained at Marlborough Road.

Claypole Church, Lincolnshire, has been restored. Mr. Hodgson Fowler, of Durham, was the architect. The works now completed were strengthening the tower by bond-stones inside and out, pointing the beautiful spire, and almost rebuilding the large aisle extensions, which had been in ruins and shut off from the church for many years. These now form a vestry and baptistery. The base of the tower was also reopened to the church. The bells have been rehung, and a new tower clock is being provided.

The work of Restoring the Parthenon, at a cost of £12,000, contributed by the Greek Government and several wealthy foreigners, has now been finished. The only thing lacking was one of the caryatides which formerly decorated the façade, and which was taken away some years ago and added to Lord Elgin's collection, the space thus rendered vacant being filled by a statue in terra-cotta. The architect in charge of the work has just received information to the effect that the precious piece of sculpture is to be given back to the Greek Government, and its arrival from England is expected shortly.

The Queen Victoria Memorial, Allahabad, India.—The premium of 2,000 rupees offered by the committee of the Queen Victoria Memorial (in India) Fund for the best design for the monument proposed to be built in Allahabad has been won by Mr. Robert F. Sherar, architect, of Edinburgh. The conditions advertised in April last were for a clock tower, the base to form a canopy over a sitting figure of Queen Victoria, 9ft. high, in bronze. Mr. Sherar has for many years been chief assistant to Mr. Peter L. Henderson, 122, George Street, Edinburgh. The monument will be built of local stone, as there are good quarries of both white and red rock in the vicinity. The statue of the Queen has been entrusted to Mr. George E. Wade.

The Monument of Gambetta that the late M. Dalou was to have executed for the town of Bordeaux is now being prepared by M. Lefevre, the artist chosen by Dalou to fulfil his ideas. M. Formige is superintending the architectural portions of the scheme. The monument will be erected some time towards the end of the year.

The Premises once known as the Grosvenor Gallery, and since then occupied by the Grosvenor Club, are about to undergo a transportation. The Orchestrelle Company have found it necessary to remove from their present premises in Regent Street, and have arranged to take over the buildings referred to in Bond Street, where they will acquire a floor-space of some 50,000 sq. ft.

Mr. W. R. Colton, the new A.R.A., is one of the many Lambeth men who have gained distinction during the past decade. From Lambeth Mr. Colton went to the Academy, and from the Academy to Paris. His best known work is "The Girdle," a model of a nude woman, which was exhibited in the Academy of 1898 and bought for the Chantrey collection.

A Grimsby Church Competition.—In a competition for new Baptist church and Sunday schools, Heneage Street, Grimsby, plans by Messrs. Garside & Pennington, architects, Pontefract and Castleford, have been accepted. The buildings are estimated to cost £5,000, and are designed in the Romanesque style in brick with stone dressings. The church is to seat 600 and the school 400.

New Frescoes for the Royal Exchange.—Mr. A. C. Gow, R.A., and Mr. W. F. Yeames, R.A., have each received commissions to execute frescoes for the ambulatory of the Royal Exchange. Up to the present time nine of the panels have been filled in, so that with those of Mr. F. Brangwyn, Mr. E. A. Abbey, R.A., and Mr. Chevallier Tayler, which are in progress, fourteen out of the twenty-four are now provided for.

A new Parsonage at Dalbeattie has been erected in connection with Christ Church at a cost of about £700. It is in Dalbeattie grey granite, with green slating and red Broseley ridge tiling. The windows are outward opening casements, and the interior woodwook has been executed in cypress wood stained a light walnut and varnished. The architect is Mr. J. A. Macgregor, of Castle Douglas.

Mr. Gibson Kyle, a well-known architect of Gateshead, died last week. He was born at Ponteland in 1820, and after being employed a short time with Richard Grainger became associated with Mr. John Dobson, his uncle, who was the architect chiefly engaged in the reconstruction of Newcastle. For him Mr. Kyle acted as clerk of works during the building of the Central Station, Newcastle. Mr. Kyle subsequently went into partnership with his uncle, and with him erected quite a number of buildings in the city. At a later period Mr. Kyle was architect to the Dean and Chapter of Durham, and had charge of the maintenance and repair of the Cathedral fabric.

All Hallows, Lombard Street, E.C.—The British Archæological Association have passed a resolution expressing deep regret at the proposed demolition of All Hallows, Lombard Street, "one of the group of churches erected by Wren after the Fire of London, and one which may claim to possess an interior hardly excelled in London among churches of the seventeenth century." The resolution states: "The richness of the carved woodwork and the subordination of ornament to structural needs render it specially worthy of preservation in the estimation of all who value the productions of the master mind of its architect and desire to retain the few remaining links between past and present times."

A Lowestoft Competition.—The Wesleyan Methodist Trustees of the High Street Church, Lowestoft, recently purchased certain cottage property at the rear of the present school, which, when pulled down, will form a good site for new schools. In a competition for new schools to be erected on this site, to cost £3,000, the plans and designs submitted by Messrs. Garside & Pennington, architects, of Pontefract and Castleford, were selected by the assessor, Mr. Cockrill, borough surveyor of Yarmouth, and they have been instructed to proceed with the work.

The Birmingham Clerk of Works and Builders' Foremen's Association held a meeting last week, when Mr. Arthur Harrison, F.R.I.B.A., president of the Birmingham Architectural Association, delivered a lecture on "Colour Decoration." Mr. Harrison, while deprecating much of the modern fashion in colour, gave expression to the opinion that on the whole there had been a great advance in public taste, and that there was great hope for the future from the bent of mind of the present and rising generation of colourists.

New Patents.

These patents are open to opposition until March 7th.

1902.—Pipe Joints.—18,773. J. S. Reekie, 39, Brecknock Road, London, N. A lead ring is cast or otherwise fixed on the spigot end of the pipe, so that when inserted in the socket and afterwards filled up with lead a tight joint is secured.

Pavement Lights.—22,349. A. de Man, 308, West 97th Street, New York. The light is of concrete with diverging lenses embedded in it, each having a prismed opening on the underside.

The following specifications will be published to-morrow and will be open to opposition until March 14th. A summary of the more important of them will be given next week. The names in italics are those of communicators of the inventions.

1902.—364, Merington, means for fresh-air supply in confined spaces. 412, Patton & Knoke, brick kilns. 627, Platt, water-supply cisterns. 1,600, Clarke, gauges for measuring the thickness of cast-iron pipes. 1,721, Parker, domestic firegrates and cooking ranges. 2,106, Bosworth, chimney and ventilating cowls. 2,226, Bowler, firebricks. 2,230, Page (*Box & Sayer*), hammer-actuated drilling or cutting apparatus for stone-dressing, &c. 2,404, Cadet & Mille, chimney cowls. 2,605, Burden & Adams, latch locks. 2,996, Miller, door-closing devices. 3,001, Erskine-Murray, means of measuring angles. 3,017, Young, kitchen-range and other firegrates. 3,245, Beasley, drawing compasses. 3,331, Ingham, manufacture of slag wool. 3,851, Kirkland, radiators. 3,964, Fradley, cisterns for water-closets. 4,103, Herdman, direct-reducing levelling staff. 4,381, Pearson, chimney-cowls. 4,713, Pegram, roof tiling 5,223, Skelton, Venetian blinds. 8,435, Adams, syphons. 8,444, Ewart & Ewart, gas- and water-regulating valves for water-heaters. 11,629, Cosslett, taps. 17,681, Simon & Simon, crushing mills. 18,670, Czermak & Tischler, latches. 18,897, Franken, collapsable protecting device for closet seats. 20,423, Bröcker, machine for the manufacture of artificial stones, tiles, &c 20,492, Birkbeck (*Mielck's Stone and Terra-cotta Co.*), artificial stone. 22,976, Barratt & United Asbestos Co., Ltd., non-conducting coverings for pipes, tubes, &c. 23,450, Calentine & Ward, smoke-consuming furnaces. 23,968, Schuler, painted and burnt glass for paving or mural purposes. 25,515. Portmann, adjustable stays for windows, doors, &c.

Complete List of Contracts Open.

DATE OF DELIVERY.		WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDERS MAY BE OBTAINED.
		BUILDING:		
Jan.	29	Gilfach Goch, Wales—Two Shops	Griffiths & Thomas	Mr. Thomas, Ironmonger, Evanstown, Gilfach Goch.
,,	29	Lymington—Office for Borough Surveyor	Town Council	Surveyor, 134 High Street, Lymington.
,,	29	Birkenhead—Retorts, Firebricks, &c.	Corporation	T. O Paterson, Gas Engineer, Gas Works, Thomas St., Birkenhead.
,,	29	Leamington—Additions to Cart Shed	Town Council	Borough Engineer, Town Hall, Leamington.
,,	30	Shottermill—School	Fernhurst U.D. School Board	J. H. Howard, Architect, Lower Street, Haslemere.
,,	30	Liverpool—Sorting Office	Commrs. of H.M. Works, &c.	Assistant Architect, H.M. Office of Works, General Post Office, Liverpool.
,,	30	Newtownards, Ireland—Additions, &c., to Infirmary, &c.	Union Guardians	J. Colville, Clerk, Union Office, Newtownards.
,,	30	Upper Cwmtwrch, Wales—School	Llangwicke School Board	D. J. Rees, Architect, Ystalyfera.
,,	30	Glacknadrummond, Ireland—Church	Committee	J. M. Robinson, 7 East Wall, Londonderry.
,,	30	Birmingham—Cottages	Corporation	J. Mansergh & Sons, 5 Victoria Street, Westminster.
,,	31	Bexley Heath, Kent—Adaptation	Urban District Council	W. T. Hawse, Surveyor to the Council, Bexley Heath.
,,	31	Hampton, Middlesex—House	———	F. G. Hughes, Architect, Marling Park, Hampton-on-Thames.
,,	31	Workington—Church Restoration	Executive Committee	J. Howes, 106 Harrington Road, Workington.
,,	31	Bishop Auckland—Alterations, &c., to Premises, &c.	Auckland Times & Herald, Ltd.	W. Perkins, Architect, Victoria Street, Bishop Auckland.
,,	31	Evesham—Vagrant Wards, &c.	Guardians	G. H. Hunt, Architect, London.
,,	31	Grey Abbey, Ireland—Church	———	T. Pentland, 35 High Street, Belfast.
,,	31	Hampton, Middlesex—House	———	F. G. Hughes, Architect, Marling Park, Hampton-on-Thames.
,,	31	Houghton—Reading-room	———	5 Lonsdale Street, Carlisle.
,,	31	Manchester—Messroom and Cartshed	Rivers Committee	City Architect, Town Hall, Manchester.
,,	31	Rumney, near Cardiff—Rebuilding Inn	———	E. H. Bruton, 119 Queen Street, Cardiff.
,,	31	Victoria, Wales—Vestry and Renovation of Chapel	Baptist Church Trustees	A. Watkins, 59 Cwm Road, Waen Llwyd.
,,	31	Maesteg—Chapel	———	D. Rees, Grocer, St. Michael's Road, Maesteg.
,,	31	Aberystwyth—Drill Hall	———	G. T. Bassett, Architect, Aberystwyth.
,,	31	Langley Park, near Durham—Workmen's Club	———	F. H. Livesay, Architect, Bishop Auckland.
Feb.	2	Birkenhead—Alterations to Offices	Union Guardians	E. Kirby, 5 Cook Street, Liverpool.
,,	2	Hindley, Lancs—Public Offices	Urban District Council	Heaton, Ralph & Heaton, Architects, Wigan.
,,	2	St. Germans, Cornwall—School, Organ-Chambers, &c.	———	J. Sansom, Architect, Greenbank Lane, Liskeard.
,,	2	Selby Oak, Birmingham—Store Fittings	King's Norton Union Gdns.	Clerk of Works, Workhouse, Selby Oak.
,,	2	Bromley—Two Shops	———	F. W. Stocker, 90 and 91 Queen Street, E.C.
,,	3	New Heath, Derby—Schools	Ault Hucknall School Board	Rollinson & Son, 13 Corporation Street, Chesterfield.
,,	3	Leicester—Portland Cement	Corporation	G. Mawbey, Borough Engineer, Town Hall, Leicester.
,,	4	Ovenden, Yorks—Ten Houses	———	M. Hall, 29 Northgate, Halifax.
,,	4	London, S.E.—85 Houses	Camberwell Borough Council	W. Oxtoby, Borough Engineer, Town Hall, Camberwell.
,,	4	Edinburgh—Enlargement of School	School Board	Mr Carfrae, 3 Queen Street, Edinburgh.
,,	4	Cheltenham—Infirmary	Union Guardians	J. Villar, 33 Cambray, Cheltenham.
,,	5	Derby Dale—Hall and Sunday Schools	———	G. Moxon, 26 Church Street, Barnsley.
,,	5	Halifax—Converting Hall into Residences	———	R. Horsfall & Son, 22A Commercial Street, Halifax.
,,	5	London, S.E.—Repairs to Infirmary Kitchen Floors, &c.	St. Olave's Union Guardians	Newman & Newman, 31 Tooley Street, S.E.
,,	5	Tipton—Schools	School Board	A. Long, 21 New Street, West Bromwich.
,,	6	Stornoway, Island of Lewis—Boathouse, &c.	Admiralty	Director of Works Department, Admiralty, 21 Northumberland Avenue, W.C.
,,	6	Cape Town—Locks	———	Controller of Stores, General Post Office, Cape Town.
,,	6	The Needles, Isle of Wight—Coast Guard Buildings	———	Superintending Engineer, Portsmouth Dockyard.
,,	7	Caergwrle, Flints—Police Station and Court House	Flintshire County Council	J. H. Davies & Sons, 14 Newgate Street, Chester.
,,	9	Walsall—School, &c.	School Board	Bailey & McConnal, Bridge Street, Walsall.
,,	10	Newton Abbot, Devon—Casual Wards, &c.	Guardians	S. Segar, Architect, Union Street, Newton Abbot.
,,	10	London, W.—Lime, Cement, Bricks, &c.	Kensington Borough Council	W. C. Leete, Town Clerk, Town Hall, Kensington.
,,	12	Edgerton, near Huddersfield—Alterations to Ravensdeane	———	J. Kirk & Sons, Architects, Huddersfield.
,,	16	Biggleswade—School	———	Townsend & Fordham, Architects, Cross Street, Peterborough.
		ENGINEERING:		
Jan.	29	Cardiff—Cars	Corporation	A. Ellis, Central Offices, The Hayes, Cardiff.
,,	29	Leigh, Lancs—Weighing Machine	Corporation	T. Hunter, Borough Engineer, Bank Chambers, Leigh.
,,	29	Ashby Woulds, Leics—Extension of Water Mains	Urban District Council	J. W. Rowley, Surveyor, High Street, Woodville.
,,	31	East Grinstead, Sussex—Water-Mains	Urban District Council	Downes & Cornewall-Walker, 45 Warwick Rd., Redhill, Surrey.
,,	31	Gwys, Swansea Valley—Driving Drift	Welsh Anthracite Collieries Co.	Manager, New Palleg Colliery, Gwys, Swansea Valley.
,,	31	Rugby—Water Culvert	Urban District Council	D. G. Macdonald, Surveyor, High Street, Rugby.
,,	31	Gwaun-cae-Gurwen, Wales—Ripping of Roof, &c.	New Cwmgorse Colliery Co., Ltd.	Company's Offices, Cwmgorse, Gwaun-cae-Gurwen, S.O.
,,	31	Tynemouth—Batteries	Corporation	C. Turnbull, Electricity Works, Tynemouth.
,,	31	Smethwick—Refuse Destructor	———	C. J. F. Allen, Town Hall, Smethwick.
,,	31	Newcastle-on-Tyne—Launch	Improvement Commissioners	R. Urwin, Bewick Street, Newcastle-on-Tyne.
Feb.	2	Batley, Yorks—Electrical Plant	Corporation	Lacey, Clirehugh & Siliar, 78 King Street, Manchester.
,,	2	Stalybridge—Electric Tramways	Electricity Board	F. Schofield, Clerk, Town Hall, Stalybridge.
,,	2	London, N.—Sewerage Works	Finchley U.D.C.	F. Smythe, Council Offices, Finchley Hall, Church End, Finchley.
,,	3	London, E.—Reconstructing Bridge	London County Council	Engineer, County Hall, Spring Gardens, S.W.
,,	4	London, E.C.—Coal Wagons, &c.	East Indian Railway Co.	C. W. Young, Secretary, Nicholas Lane, E.C.
,,	4	Leytonstone—Weighbridge	West Ham Union Guardians	F. E. Hilleary, Clerk, Workhouse, Leytonstone.
,,	5	Sunderland—Cranes	Corporation	J. F. C. Snell, Electrical Engineer, Town Hall, Sunderland.
,,	5	Swansea—Sinking Shafts	Harbour Trustees	A. O. Schenk, Engineer, Harbour Offices, Swansea.
,,	7	Londonderry—Pump	Rural District Council	M. A. Robinson, Engineer, Richmond Street, Londonderry.
,,	7	Misterton, Somerset—Sewerage and Water-Supply Works	Chard R.D.C.	C. Combes, Engineer, Tisbury, Wilts.
,,	9	Glasgow—Dredger	Clyde Navigation Trustees	G. H. Baxter, 16 Robertson Street, Glasgow.
,,	10	West Ham—Electrical Equipment of Tramways	Town Council	J. K. Bock, Borough Electrical Engineer, Abbey Mills, West Ham.
,,	10	London, S.W.—Trench Work	London County Council	County Hall, Spring Gardens, S.W.
,,	11	Henley-in-Arden—Gasholder and Tank	Gas Committee	J. W. Lord, Secretary, Gas Co.'s Offices, Henley-in-Arden.
,,	12	Southampton—Boreholes	Corporation	W. Matthews, 18 & 19 French Street, Southampton.
,,	12	Southampton—Engine	Corporation	W. Matthews, 18 & 19 French Street, Southampton.
,,	12	Guayaquil, Ecuador, South America—Lighting	Municipal Council	Ecuadorian Consulates, 35 Chapel Walks, Liverpool.
,,	12	London, N.E.—Electrical Plant	Hackney Borough Council	R. Hammond, 64 Victoria Street, Westminster, S.W.
,,	13	Darlington—Electrical Plant	Corporation	H. G. Steavenson, Town Clerk, Darlington.
,,	14	Bamford—Reservoir	Chapel-en-le-Frith R.D.C.	Sterling & Swann, Engineer, Town Hall, Chapel-en-le-Frith.
,,	19	Liscard, Cheshire—Feed-water Softener, &c.	Wallasey U.D.C.	J. H. Crowther, Engineer, Great Float, near Birkenhead.
,,	26	Bulawayo, Rhodesia—Electric Tramway	Municipal Council	Davis & Soper, 54 St. Mary Axe, E.C.
,,	28	Singapore—Graving Dock	Tanjong Pagar Dock Co., Ltd.	Tanjong Pagar Dock Co., Ltd., 120 Fenchurch Street.
March	2	Boston, Lincs—Heating Municipal Buildings	Town Council	J. Rowell, Architect, Borough Offices, Market Place, Boston, Lincs.
July	1	Rangoon—Electric Supply Undertaking	Municipal Committee	Ogilvy, Gillanders & Co., 67 Cornhill, E.C.
		FURNITURE:		
Jan.	31	Kinross, Scotland—Furnishing Hospital	———	W. K. Falconer, County Clerk, Kinross.
Feb.	9	Leeds—Furniture and Fittings for Police Station	Corporation	W. H. Thorp, 61 Albion Street, Leeds.
		IRON AND STEEL:		
Jan.	29	Croydon—Iron Fencing	Lunacy Visiting Committee	Borough Engineer, Town Hall, Croydon.
,,	31	Glasgow—Pipes	Corporation	J. M. Gale, 45 John Street. Glasgow.
	31	East Grinstead, Sussex—Castings	Rural District Council	Downes & Cornewall-Walker, 45 Warwick Rd, Redhill, Surrey.
Feb.	2	Otley, Yorks—Ironwork	Urban District Council	J. Waugh, Civil Engineer, Sunbridge Chambers, Bradford.
,,	2	Grimsby—Ironmongery, &c.	Corporation	H. G. Whyatt, Borough Engineer, Town Hall, Grimsby.
,,	3	Portsmouth—Ironmongery, Castings, &c.	Corporation	Superintendent, Electric Lighting Station, Gun Wharf Road, Portsmouth.
,,	6	Cape Town—Locks	———	Agent-General for Cape Colony, 100 Victoria Street S W.
,,	9	Edinburgh—Mains	Gas Commissioner	W. R. Herring, Chief Engineer, New Street Works, Edinburgh.
,,	9	London, N.—Stores and Ironmongery, Iron, Steel, &c.	Hornsey U.D.C.	E. J. Lovegrove, Engineer to Council, Southwood Lane, Highgate.
,,	10	London, W.—Iron Goods, Lamp Columns, &c.	Kensington Borough Council	W. C. Leete, Town Clerk, Town Hall, Kensington.
,,	14	Richmond, Surrey—Ironfounder's Work, &c.	Town Council	J. H. Brierley, Borough Surveyor, Town Hall, Richmond.
,,	16	Plymouth—Ironware, Iron and Steel Bolts, Nuts, &c.	Corporation	J. Paton, Borough Engineer, Town Hall, Plymouth.
		PAINTING AND PLUMBING:		
Feb.	2	Manchester—Painting	Lancs and Yorks Rly. Co.	Engineer's Office, Hunt's Bank, Manchester.
,,	2	Grimsby—Brushes, Paints, Oils, &c.	Corporation	H. G. Whyatt Borough Engineer, Town Hall, Grimsby.
,,	3	Portsmouth—Brushes, Paints, &c.	Corporation	Superintendent, Elec. Lighting Station, Gunwharf Rd., Portsmouth.
,,	14	Richmond, Surrey—Oil, Paints, &c.	Town Council	J. H. Brierley, Borough Surveyor, Town Hall, Richmond.
,,	16	Plymouth—Tar, Creosote, Brushes, &c.	Corporation	J. Paton, Borough Surveyor, Plymouth.

Complete List of Contracts Open —*continued.*

DATE OF DELIVERY.		WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDERS MAY BE OBTAINED.
		ROADS AND CARTAGE:		
Jan.	29	Gateshead—Street Works	Corporation	Borough Engineer, Town Hall, Gateshead.
,,	29	London, W.—Making-up Road	Town Council	C. Jones, Borough Engineer, Town Hall, Ealing, W.
,,	29	Withington, Lancs—Street Works	Urban District Council	A. H. Mountain, Surveyor, Town Hall, West Didsbury.
,,	30	Spilsby—Materials	Rural District Council	T. A. Busbridge, District Surveyor, Spilsby.
,,	30	Swansea—Levelling, &c.	Rural District Council	E. Harris, Clerk, District Council Office, Alexandra Rd., Swansea.
,,	30	Hertfordshire—Granite and Slag	County Council	U. A. Smith, 41 Parliament Street, Westminster, S.W.
,,	31	Hemel Hempstead—Steam Road-Rolling and Scarifying, &c.	Corporation	W. R. Locke, Borough Surveyor, Town Hall, Hemel Hempstead.
,,	31	Littlehampton—Road Works	Urban District Council	H. Howard, Surveyor, Town Office, Littlehampton.
,,	31	Norwich—Granite	Norfolk County Council	T. H. B. Heslop, County Surveyor, Norwich.
,,	31	Hemel Hempstead—Slag	Corporation	W. R. Locke, Borough Surveyor, Town Hall, Hemel Hempstead.
,,	31	Norwich—Materials, &c.	Norfolk County Council	T. H. B. Heslop, County Surveyor, Norwich.
,,	31	Sleaford, Lincs—Granite	Urban District Council	E. Clements, Clerk, Urban Council Office, Sleaford.
Feb.	2	Prestwich, Lancs—Footpath	Urban District Council	Surveyor, Chester Bank, Prestwich.
,,	2	Prestwich, Lancs—Road Works	Urban District Council	Surveyor, Chester Bank, Prestwich.
,,	2	Grimsby—Materials and Stores	Corporation	H. G. Whyatt, Borough Surveyor, Town Hall, Grimsby.
,,	2	Chelmsford—Making-up	Rural District Council	H. G. Warne, Avenue Chambers, Market Road, Chelmsford.
,,	3	Leyton, Essex—Materials, &c.	Urban District Council	W. Dawson, Surveyor, Town Hall, Leyton.
,,	3	London, N.—Making-up	Tottenham U.D.C.	W. H. Prescott, 712 High Road, Tottenham
,,	3	Wealdstone, Middlesex—Footpath Paving	County Council	H. T. Wakelam, County Engineer, Middlesex Guildhall, Westminster, S.W.
,,	3	West Hartlepool—Esplanade Works	Corporation	J. W. Brown, Borough Engineer, West Hartlepool.
,,	4	London, S.E.—Roads and Sewers		F. & W. Stocker, 90 and 91 Queen Street, E.C.
,,	5	Isle of Ely—Material	County Council	H. F. Simpson, County Surveyor, Northern Division, Wisbech, and R.S.W. Perkins, County Surveyor, Southern Division, Ely.
,,	7	Londonderry—Burial Ground Works	Rural District Council	M. A. Robinson, Civil Engineer, Richmond Street, Londonderry.
,,	7	Chelmsford—Materials	Essex County Council	P. J. Sheldon, Chief Surveyor, County Offices, Chelmsford.
,,	9	London, N.—Road Materials	Hornsey U.D.C.	E. J. Lovegrove, Engineer, Southwood Lane, Highgate, N.
		SANITARY:		
Jan.	29	Wirrall, Cheshire—Sewer	Rural District Council	Beloe & Priest, 13 Harrington Street, Liverpool
,,	29	Lingfield, Surrey—Sewer, &c.	Rural District Council	A. Williams & Son, 14 Victoria Street, Westminster.
,,	29	Harwich—Concrete Sewer	Town Council	H. Ditcham, Borough Surveyor, Harwich.
,,	31	Midleton, Ireland—Drainage Improvements	Rural District Council	J. Stanton, Clerk, Board Room, Workhouse, Midleton.
Feb.	2	Old Hill, Staffs Scavenging	Rowley Regis U.D.C.	D. Wright, Clerk, Council Offices, Old Hill, Staffs.
,,	2	Wharfedale, Yorks—Sewers, &c.	Rural District Council	H. A. Johnson, 15 The Exchange, Bradford.
,,	2	Grimsby—Drain Pipes and Traps, Disinfectants, &c.	Corporation	H. G. Whyatt, Borough Engineer, Town Hall, Grimsby.
,,	2	London, N.—Sewerage Works	Finchley U.D.C.	F. Smythe, Engineer, Council Offices, Finchley Hall, Church End, Finchley, N.
,,	3	Portsmouth—Stoneware Pipes, &c.	Corporation	Superintendent, Elec. Lighting Station, Gunwharf Rd., Portsmouth
,,	4	Burton-upon-Trent—Sewer	Corporation	G. T. Lynam, Borough Surveyor, Town Hall, Burton-on-Trent.
		TIMBER:		
Jan.	31	Harrogate—Pitch-Pine Timber	Corporation	E. W. Dixon, 14 Albert Street, Harrogate.
Feb.	2	Grimsby—Timber	Corporation	H. G. Whyatt, Borough Surveyor, Town Hall, Grimsby.
,,	3	Leicester—Woods Blocks	Corporation	E. G. Mawbey, Borough Surveyor, Town Hall, Leicester.
,,	10	London, W.—Timber	Kensington Borough Council	W. C. Leete, Town Clerk, Town Hall, Kensington.
,,	14	Richmond, Surrey—Timber	Town Council	J. H. Brierley, Borough Surveyor, Town Hall, Richmond.

List of Competitions Open.

DATE OF DELIVERY.		DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	DEPOSIT REQUIRED FOR CONDITIONS, &c.	BY WHOM ADVERTISED.
Jan	31	Cape Town—University Buildings	£400, £200, £100.	——	Agent-General for the Cape of Good Hope, London.
Feb.	10	Winchester—Recreation Ground	£75 and £25.	10s.	W. Bailey, Town Clerk, Guildhall, Winchester.
,,	11	Pengam—Isolation Hospital	——	——	F. T. James, 134 High Street, Merthyr Tydfil.
,,	13	Patras, Greece—Church	£400, £160, £80.	——	Committee for new Church of St. Andrew, Patras, Greece.
,,	16	Durban—Town Hall and Municipal Offices.	£500, £300, £200.	——	W. H. Radford, Albion Chambers, King Street, Nottingham.
,,	20	Sutton Coldfield—Town Hall	£50, £30, £20.	——	W. A. H. Clarry, Borough Surveyor, Council House, Sutton Coldfield.
,,	28	Bridgwater—Appliances for Silt Disposal.	——	£2 2s.	W. T. Baker, Town Clerk, King Square, Bridgwater.
March	2	Whitley Bay—Board Schools	——	——	J. W. Mitchell, Clerk, Whitley and Monkseaton School Board, Council Buildings, Whitley Bay, R.S.O.
,,	4	Chepping Wycombe—Town Hall, &c.	£105 and £26 5s.	——	T. J. Rushbrooke, 77 Easton Street, Wycombe.
,,	31	Hull—Extension of Town Hall	£300, £200, £100.	£5 5s.	E. Laverack, Town Clerk, Town Hall, Hull.
,,	31	Castleford, Yorkshire — Public Library.	£15, £10.	——	H. A. Broadbent, Clerk to Urban District Council, Castleford, Yorkshire.
,,	31	Chelmsford—Infectious Diseases Hospital.	£25, £10.	£1.	A. S. Duffield, 96 High Street, Chelmsford.

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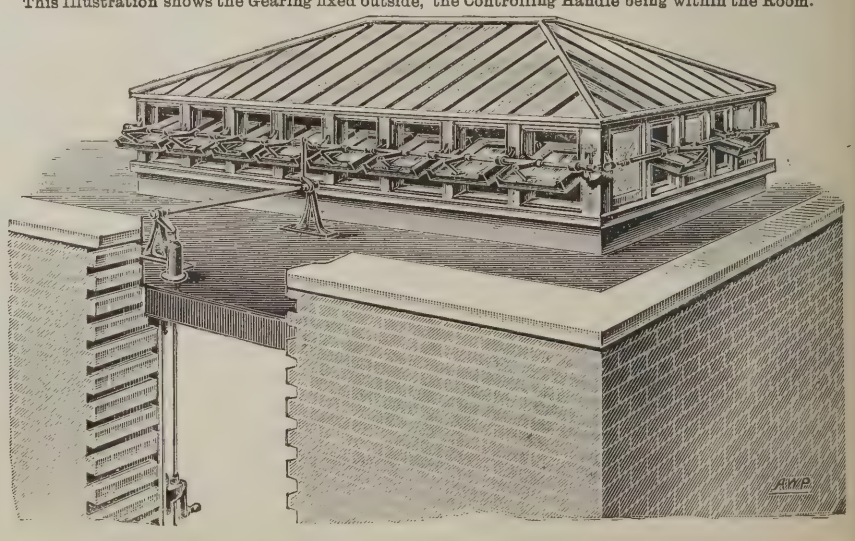
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REINFORCED CONCRETE.

AN interesting test in connection with the strengthening of concrete by steel, which is attracting so much attention, was made last week at Messrs Connal's pig-iron stores, Glasgow, upon a slab of concrete 7in thick and 15ft. by 15ft. in the clear, with a tension bond of Expanded Metal (steel) about ¾in. from its lower surface. The slab, which had been completed some three months, was supported by dwarf walls 3ft. high, and had a bearing on these walls o 6in. on all four sides. On November 12th a preliminary test was made, and the slab loaded to the extent of an evenly-distributed load of 3 cwts. per sq. ft., which had remained there until the final test was made. The object of the final test was to ascertain the ultimate load which a slab could sustain up to the breaking point. The inspection committee consisted of Mr. A. T. Walmisley, M.I.C.E., engineer to the Dover Harbour Board; Mr. J. P. Allen, P.A.S.I., of Newcastle-on-Tyne; and Mr. Andrew Home Morton, A.M.I.C.E., of Glasgow. The total breaking load amounted to 56 tons 11 cwts., when the slab gave way, the fracture radiating from the centre towards each angle of the square. There was no evidence of the supporting walls sinking.

Engineering Notes.

The Institute, Bletchingley, Surrey, is being warmed and ventilated by means of Shorlands' patent Manchester stoves, supplied by Messrs. E. H. Shorland & Brother, of Manchester.

"The Cliff," Tutbury, has recently been fitted with the latest improved hot-water heating apparatus by Messrs. John King, Ltd., engineers, Liverpool, who have employed their ornamental "Rahnee" radiators.

"Electric Traction on Street Tramways," an article by Mr. C. Biggs, A.I.E.E., which appeared in the Local Government Journal, has been reprinted in pamphlet form, price 6d. It is published at 27A, Farringdon Street, London, E.C.

The Junior Institution of Engineers visited on January 17th the new Electricity Works of the Metropolitan Borough of Shoreditch, Whiston Street, on the banks of the Regent's Canal. They were shown round by the chief electrical engineer, Mr. C. Newton Russell, and members of his staff. There are four water-tube Babcock Wilcox marine boilers. The engine-house plant consists of two vertical low-speed Corliss compound engines, made by the Wallsend Slipway and Engineering Co., each directly coupled to a continuous current Westinghouse generator of 800 K.W. capacity. At the conclusion of the inspection, Mr. H. Cartwright Reid, M.Inst.C.E., member of Council, conveyed the thanks of the members.

Vacant Appointments.

[The dates given are those on which the application is to be sent in, and the name given is that of the person to apply to. In nearly every case the application has to be made on a special form, which can be obtained from the officials mentioned.]

January 28.

WALSALL BOROUGH.—Shift engineer, £2 per week. A. Wyllie, electrical engineer.

January 29.

STRETFORD U.D.C.—Engineering clerk of works (state salary required). G. H. Abrahams, clerk.

January 30.

BENARES, INDIA.—Assistant resident engineer, £320, rising; waterworks inspector, £160, rising. Chairman, Municipal Board, Benares.

RANGOON PORT TRUST.—Resident engineer, Rs.700, rising to 1,000 monthly. George Buchanan, chairman, Burma.

MALAY STATES.—Six surveyors, chief draughtsman, £360 each, free quarters. Private Secretary, Colonial Office.

January 31.

HARROGATE CORPORATION.—Works manager, state salary required, house free on works. G. W. Dixon, engineer.

NEW WINDSOR.—Borough surveyor's assistant, £52. E. A. Strickland, engineer.

February 2.

FULHAM BOROUGH.—Superintendent of Roads, £150. R. M. Prescot, town clerk.

KARESBOROUGH U.D.C.—Inspector of nuisances, £50. J. Mainsman, clerk.

LONDON COUNTY COUNCIL.—Assistant in chief engineer's department, £500. G. L. Gomme, clerk.

WHITWORTH U.D.C.—Surveyor, £120. R. V. Clayton, clerk.

WOOLWICH BOROUGH.—Architectural assistant £182. T. B. Bryceson, town clerk.

February 3.

NEWTON ABBOT R.D.C.—Surveyor, £130. F. Horner, clerk.

February 7.

EASTLEIGH AND BISHOPSTOKE U.D.C.—Surveyor, £250. H. White, clerk.

MANCHESTER CORPORATION TRAMWAYS.—Assistant Electrical Engineer, £200. W. H. Talbot, clerk.

February 15.

BOMBAY CITY.—Executive engineer, Rs.1,200 per month. M. N. Waded, municipal secretary.

February 16.

MANCHESTER OWENS COLLEGE.—Professor of Architecture, £600. Registrar, Owens College.

New Companies.

G. Louis Lavender, Ltd.

Registered to acquire limestone, granite, and other stone or clay mines and quarries, and the business. Capital £10,000 in £1 shares. Registered office: Rushall, near Walsall, Staffs.

British and Colonial Transformable and Transportable Building Co., Ltd.

Registered to carry on business as builders of buildings of all kinds, &c. Capital £150,000 in £1 shares. Registered office 8, Staple Inn, Holborn.

Cardiff and South Wales Sanitary Inspection Association.

Registered as indicated by title, with 500 members. Office: 28, West Bute Street, Cardiff.

Davis Brothers, Ltd.

Registered to take over the business now carried on by C. J. Davis at Hackney and Bethnal Green, and to carry on the business of varnish manufacturers, &c. Capital £6,000 in £1 shares.

Amalgamated Estates, Ltd.

Registered to carry on the business of land, building owners, &c. Capital £25,000 in £1 shares. Registered office: Moorgate Station Chambers, E.C.

North of England Granite Supply Co., Ltd.

Registered to carry on the business of manufacturers of and dealers in cement and artificial stone for building, &c. Capital £3,000 in £1 shares. Registered office: Whitley Street, Liverpool.

R. Marshall & Co., Ltd.

Registered to carry on the business of builders' merchants, &c. Capital £2,000 in £1 shares. Registered office: 5, Marldon Chambers, 30, North John Street, Liverpool.

Prested Miners' Gas-Indicating Electric Lamp Co., Ltd.

Registered to acquire from the Prested Gas-Indicator Syndicate, Ltd., and H. G. Prested, certain inventions for apparatus for indicating the presence of dangerous gases, patented in England, Belgium, France and the United States of America, and for a new miners' gas-detecting electric lamp. Capital £12,500 in £1 shares. The first directors are J. Moule, C. A. Huni, J. Oxendale, W. G. Wilson and H. G. Prested. Registered office: 268-270, Mansion House Chambers, E.C.

Yates & Sons (Sheffield), Ltd.

Registered to take over the business of saw manufacturers carried on at Wicker Lane Saw Works, Sheffield, as Yates & Sons. Capital £3,000 in £1 shares. The first directors are E. Peace, H. de Lacy Pigott and W. H. Yates. Registered office: Wicker Lane Saw Works, Sheffield.

Keen & Sons, Ltd.

Registered to carry on the business of builders, decorators and contractors, &c. Capital £500 in £1 shares.

Current Market Prices.

		£	s.	d.	£	s.	d.
FORAGE.							
Beans	per qr.	1	9	9	1	12	3
Clover, best	per load	4	10	0	5	0	0
Hay, best	do.	3	15	0	5	10	0
Sainfoin mixture	do.	3	15	0	4	5	0
Straw	do.	1	8	0	1	18	0
OILS AND PAINTS.							
Castor Oil, French	per cwt.	1	3	11		—	
Colza Oil, English	do.	1	4	6		—	
Copperas	per ton	2	0	0		—	
Lard Oil	per cwt.	2	13	0	2	14	0
Lead, white, ground, carbonate	do.	1	4	10		—	
Do. red	do.	1	0	4½			
Linseed Oil, barrels	do.	1	5	0		—	
Petroleum, American	per gal.	0	0	5⅜		—	
Do. Russian	do.	0	0	4¼	0	0	4⅜
Pitch	per barrel	0	7	0		—	
Shellac, orange	per cwt.	6	3	0		—	
Soda, crystals	per ton	3	2	6	3	5	0
Tallow, Home Melt	per cwt.	1	10	9		—	
Tar, Stockholm	per barrel	1	1	6		—	
Turpentine	per cwt.	2	2	0		—	
METALS.							
Copper, sheet, strong	per ton	67	0	0		—	
Iron, Staffs., bar	do.	6	5	0	8	10	0
Do. Galvanised Corrugated sheet	do.	11	5	0	11	10	0
Lead, pig, Soft Foreign	do	11	10	0	11	12	6
Do. do. English common brands	do.	11	15	0	11	17	6
Do. sheet, English 3lb. per sq. ft. and upwards	do.	13	10	0		—	
Do. pipe	do.	14	0	0		—	
Nails, cut clasp, 3in. to 6in.	per ton	9	5	0		—	
Do. floor brads	do.	9	0	0		—	
Steel, Staffs., Girders and Angles	do.	5	15	0	6	5	0
Do. do. Mild bars	do.	6	10	0	7	0	0
Tin, Foreign	do.	129	15	0	130	5	0
Do. English ingots	do.	131	0	0	132	0	0
Zinc, sheets, Silesian	do	23	10	0		—	
Do. do. Vieille Montaigne	do.	23	10	0		—	
Do. Spelter	do.	20	2	6	20	7	6
TIMBER.							
SOFT WOODS.							
Fir, Dantzic and Memel	per load	1	13	0	3	0	0
Pine, Quebec, Yellow	do.	5	5	0	6	5	0
Do. Pitch	do.	3	0	0	3	4	0
Laths, log, Dantzic	per fath.	4	10	0	5	10	0
Do. Petersburg	do.	7	5	0		—	
Deals, Archangel 2nd & 1st per P.Std.		12	10	0	14	0	0
Do. do. 4th & 3rd	do.	10	5	0	12	15	0
Do. do. unsorted	do.	5	12	6	6	10	0
Do. Riga	do.	6	15	0	12	10	0
Do. Petersburg 1st Yellow	do.	10	10	0	11	5	0
Do. do. 2nd Yell.	do.	9	0	0	17	5	0
Do. do. White	do.	7	10	0	11	10	0
Do. Swedish	do.	5	15	0	16	15	0
Do. White Sea	do.	12	15	0	15	5	0
Do. Quebec Pine, 1st	do.	17	15	0	18	5	0
Do. do. 2nd	do.	12	0	0	18	5	0
Do. do. 3rd &c.	do.	8	15	0	13	15	0
Do. Canadian Spruce 1st	do.		—		11	10	0
Do. do. 3rd & 2nd	do.	9	12	6	10	5	0
Do. New Brunswick	do.	7	15	0	8	0	0
Battens, all kinds	Per P. Std.	6	10	0	12	5	0
Flooring Boards 1in. prepared, 1st	per square	0	10	9	0	12	9
Do. 2nd	do	0	9	3	0	10	6
Do. 3rd &c.	do	0	8	3	0	9	6
HARD WOODS.							
Ash, Quebec	per load	3	12	6		—	
Birch, Quebec	do.	3	12	6	3	17	6
Box, Turkey	per ton	15	0	0	20	0	0
Cedar, Cuba	per ft. sup.	0	0	3⅜	0	0	5
Do. Honduras	do.	0	0	4 9/32		—	
Do. Tobasco	do.	0	0	4 3/32		—	
Elm, Quebec	per load	4	0	0	5	2	6
Mahogany, Average Price for Cargo, Honduras	per ft. sup.	0	0	5 5/16		—	
Do. African	do.	0	0	4 15/16		—	
Do. St. Domingo	do.	0	0	3¼	0	0	6
Do. Tobasco	do.	0	0	4 3/32		—	
Do. Cuba	do.	0	0	4¼	0	0	8 7/10
Oak, Dantzic and Memel	per load	3	5	0	3	15	0
Do. Quebec	do.	6	5	0	6	10	0
Teak, Rangoon, planks	do.	16	0	0	17	10	0
Wainscot, Riga (Baulk)	do.	3	15	0	5	15	0
Walnut, Odessa Crown	do.	3	15	0	5	15	0
Do. American	per ft. cube	0	2	0		—	

Tenders.

Information from accredited sources should be sent to "The Editor" at latest by noon on Monday if intended for publication in the following Wednesday's issue. Results of Tenders cannot be accepted unless they contain the name of the Architect or Surveyor for the work.

Addressed postcards on which lists of tenders may be stated will be sent post free on application to the Manager, BUILDERS' JOURNAL, *9, East Harding Street, E.C.*

Cleethorpes (Lincs.).—For the construction of a sea-wall, slipways, bastions, steps, filling-in, groynes, &c., at Cleethorpes, Lincolnshire, for the Cleethorpes-with-Thrunscoe Urban District Council. Mr. Egbert Rushton, engineer, Poplar Road, Cleethorpes :—

Braithwait, Leeds	£26,000 0 0
Langton, Hull	24,620 14 4
Robinson, Hull	24,244 18 2
Brebner, Edinburgh	23,441 17 0
Starky, Hull	19,893 7 3
Dixon, St. Albans	17,769 0 0
Bell, London	17,616 0 0
Leggatt, Hull	17,369 15 0
Brunton, Hull	16,978 2 6
Hewins & Goodhand, Grimsby	16,877 0 0
Heywood & Co., London	16,753 1 3
Binns, Croydon	16,527 3 1
Thompson, Grimsby	16,347 0 0
Sangwin, Hull	16,257 5 0
Clark, Sheffield	16,201 7 6
Cooke & Co., London	16,193 0 0
Fasey, London	16,093 7 10
Gladwell, Barrow-in-Furness	14,800 0 0
H. B. James, London	13,800 0 2
J. & M. Patrick, London	12,278 0 0

Cresswell (near Chesterfield).—For the construction of sewerage settling tanks, carriers and laying-out irrigation area and automatic machinery for supplying the latter, also a 12in. and 9in. sewer in the village of Cresswell, together with all manholes and ventilators, flushing arrangements and other appurtenances, for the Clown Rural District Council. Mr. E. Hazledine-Barber, A.M.I.C.E., engineer, Hollin Hill, Clown, Chesterfield :—

J. Jackson, Whitwell, Mansfield	£4,532 1 0
C. Sprakes & Sons, Doncaster	4,368 11 0
A. F. Houfton, Lansfield	4,100 0 0
R. Wood, Bingley	4,093 3 5
C. E. Cox & Son, Ilkeston	4,041 17 6
A. Holme, Leicester	4,034 0 0
G. H. Hall, Driffield	3,996 5 0
Bower Brothers, West Bridgford, Notts	3,728 1 6
Ward & Tetley, Bradford	3,526 0 2
H. Ashley,* Mansfield	3,502 10 6

* Accepted.

Dartford.—For the making-up of certain private streets within their district, called Thirza Road, Waldeck Road and Marriott Road, and the laying of patent Victoria stone slab footpath paving therein, for the Urban District Council. Mr. W. H. Harston, surveyor :—

J. Leaver, Maidstone	£1,659 9 0
A. T. Catley, 23 Lloyd Square, London	1,480 0 0
T. Free & Sons, Maidenhead	1,434 8 3
Parsons & Parson,* Ilford Wharf, Ilford, Essex	1,313 11 0

* Accepted.

Felixstowe.—For the Sea Road paving, for the Felixstowe Urban District Council :—

G. Rackham, Norwich	£4,313 19 6
C. Durrant	2,082 17 6
B. Cooke & Co.	1,850 0 0
J. C. Trueman	1,833 0 0
G. S. Horton	1,714 14 0
W. Wawman	1,630 0 0
G. Burgoyne	1,650 0 0
Bradshaw & Co.*	1,527 1 6

* Accepted.

Felixstowe.—For Undercliff Road (East) paving, for the Felixstowe Urban District Council :—

G. Rackham	£2,263 11 2
C. Durrant	2,213 3 6
J. C. Trueman	1,996 0 0
G. Burgoyne	1,990 0 0
B. Cooke & Co.	1,822 0 0
Bradshaw & Co.*	1,885 0 5

* Recommended for acceptance.

Frome.—For the construction of electrical works, for the Urban District Council :—

General Electric Co., 69 Queen Victoria Street, London	£20,856
Edmundson's Electrical Corporation,* Broad Sanctuary Chambers, Westminster	20,156

* Accepted.

Kirkcaldy (Scotland).—For the construction of new streets between Nichol Street and Abbotshall Road, and for the extension of Ava Street to Milton Road, for Mr. R. C. Munro-Fergusson, Raith & Novar. Mr. William D. Sang, C.E., engineer, Kirkcaldy :—

G. Mackay & Son, Edinburgh	£1,551 4 6
W. Dobson, Edinburgh	1,491 7 10
A. Brunton & Son, North Queensbury	1,462 4 2
W. Wilson, Glasgow	1,132 8 5
J. Jamieson, Musselburgh	1,304 5 9
J. Mackay, Broughty Ferry	1,287 3 10
D. Whyte	1,247 11 9
D. Gilmour	1,217 12 3
J. Kennedy*	1,194 11 11
W. Brown	1,194 1 4

* Accepted. [Rest of Kirkcaldy.]

London, N.—For the construction of an outfall sewer and surface-water sewers in Harringey Passage, for the Hornsey Urban District Council :—

R. Ballard, Ltd.	£15,593 0 0
Foster Brothers	13,370 0 0
D. R. Paterson	11,859 0 0
T. Adams	11,512 11 8
C. W. Killingback & Co.	10,875 9 8
C. Ford	9,487 0 0
E. E. Parry & Co.	9,485 13 0
Johnson & Langley*	8,175 0 0

* Accepted.

London, N.W.—For alterations and additions to No. 12, Upper Park Road, Hampstead, for F. J. Thairlwall, Esq. Mr. Percy A. Boulting, architect, 30 John Street, Bedford Row, W.C. :—

Clark & Co.	£385 0
Jacob Cleverley	285 0
John Anley & Son	278 0

London, N.E.—For works required to be executed in the extension of the existing boiler-house and the provision of additional boilers at the workhouse, Sydney Road, Homerton, N.E., for the Guardians of Hackney Union. Mr. W. A. Finch, architect, 76 Finsbury Pavement, E.C. :—

Watts, Johnson & Co.	£2,697	W. J. Fraser & Co.*	£2,420
W. J. Clark	2,595	W. Shurmur	2,394
H. Lovatt	2,540	Fraser & Fraser	2,237
Barrett & Power	2,480	J. Richmond	2,187

* Accepted.

London, N.E.—For erection of dormitories, maternity wards and other buildings at their Waterloo Road Workhouse, Bishop's Road, Victoria Park, N.E., for the Bethnal Green Board of Guardians. Mr. W. A. Finch, architect, 76 Finsbury Pavement, E.C. :—

Patnam & Fotheringham	£13,423	W. Lawrence & Sons	£11,984
Lamplough	13,179	Foster Brothers	11,972
W. Shurmur	12,699	J. Appleby & Sons	11,627
C. Dearing & Sons	12,599	W. Smith & Son	11,289
E. Lawrance & Sons	12,350	H. Wall & Co.	11,275
J. Shelbourne & Co.	12,300	A. E. Symes	11,175
Barrett & Power	12,250	J. O. Richardson	10,900
Perry Brothers	12,097	Watts, Johnson & Co.,* Limehouse	10,297
Haydon & Sons	11,985		

* Provisionally accepted.

London, S.W.—For the erection of a London Baptist Association Church at Mitcham Lane, Streatham, S.W. First portion of scheme, namely, nave, tower, vestries, &c. Messrs. George Baines, F.R.I.B.A., & R. Palmer Baines, architects, 5 Clement's Inn, Strand, W.C. :—

Contractor.	Est. A.	Est. B.	Est. C	Est. D.	Total.
J. Carmichael	£4,700	£20 0	£45	£81 0	£4,846 0
Mattock Brothers	4,687	25 0	41	80 0	4,833 0
Johnson & Co.	4,611	19 0	45	77 0	4,752 0
Holloway Bros.	3,847	17 0	44	77 0	3,985 0
Jenkin & Co	3,655	24 0	43	76 0	3,798 0
Holliday & Greenwood	3,597	17 10	44	77 10	3,736 0
S. J. Scott	3,552	19 0	44	77 0	3,692 0
F. Gough & Co.	3,554	17 0	44	77 0	3,692 0
J. Garrett & Son	3,530	23 0	42	73 10	3,668 10
Goddard & Sons	3,516	18 10	44	77 0	3,656 10
Lorden & Son	3,444	13 0	43	75 0	3,575 0
Battley, Sons & Holness*	3,387	17 0	44	75 0	3,523 0

* Accepted.

Nottingham.—For the construction and erection of a new bridge over the canal, Wilford Street, Nottingham, for the Works and Ways Committee. Mr. Arthur Brown, M.I.C.E., city engineer :—

Carter Brothers & Co., Manchester	£1,575 7 8
Cross & Cross, Walsall	1,470 0 0
Heenan & Froude, Ltd., Manchester	1,445 3 5
E. C. & J. Keay, Ltd., Birmingham	1,434 0 0
Constructional Engineering Co., Manchester	1,410 9 7
Westwood & Wrights, Brierley Hill	1,402 10 0
W. A. Baker & Co., Ltd., Newport	1,397 2 4
A. Handyside & Co., Ltd., Derby	1,397 17 1
G. Taylor & Co, Manchester	1,390 4 9
Railway & General Engineering Co., Nottingham	1,359 16 11
J. O. Brettell, Worcester	1,348 8 6
Skipwith & Jones, Manchester	1,323 17 0
Phœnix Foundry Co., Derby	1,302 5 9
J. Tildesley, Ltd., Willenhall	1,274 0 0
Butterley Co., Ltd., Derby	1,237 1 2
Horseley Co., Ltd.,* Tipton	1,216 0 0

* Accepted.

Oxford.—For alterations and additions to Lloyd's Cafe, Cornmarket Street, Oxford. Mr. Herbert Quinton, architect and surveyor, 22 George Street, Oxford :—

Brucker Brothers	£569
T. Kingerlee & Sons	388
J. Wooldridge	385

Pengam (Wales).—For the erection of twenty-five houses at Pengam, for the Pengam Building Club. Mr. P. V. Jones, P.A.S.I., architect, Hengoed, via Cardiff :—

J. Morgan, Blaenavon	£6,000 0 0
T. F. Howells, Cardiff	5,650 0 0
J. H. James, Cardiff	5,212 10 0
D. Powell, Abertillery (Mon)	5,100 0 0
W. Jones, Porth, Rhondda	4,975 0 0
Davies & Thomas, Ynyshir (Mon)	4,937 10 0
E. Edwards, Pengam	4,816 5 0
E. Hughes,* Capel Street, Bargoed	4,763 2 6

* Accepted.

Wigan.—For the erection of (1) fourteen cottages in Ellis Street, and (2) eleven in Eckersley Street, off Whelley, for the Corporation :—

Contract No. 1.

Birch & Clayton	£2,380 0
J. Pye, Morecambe	2,299 19
A. Sharples	2,280 0
J. Dickinson	2,170 0
J. Wilson & Co.	2,163 0
Darbyshire & Collett*	2,156 0

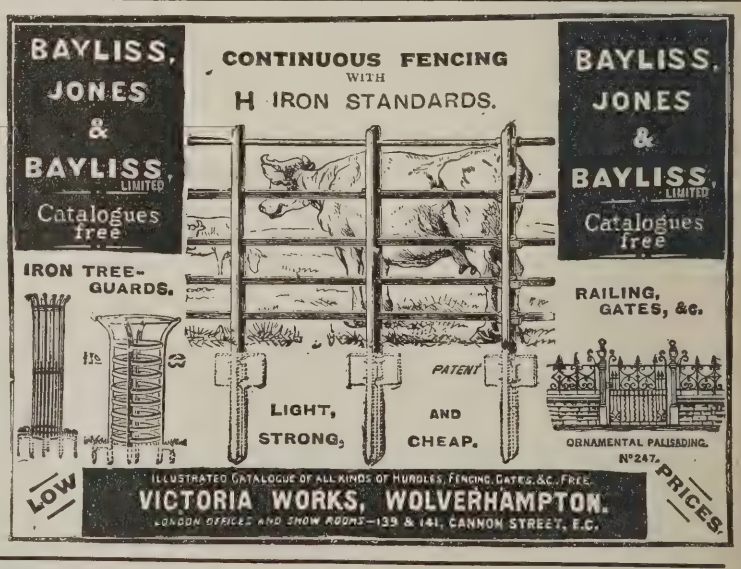
Contract No. 2.

Birch & Clayton	1,870 0
J. Pye	1,799 0
Darbyshire & Collett	1,705 0
J. Dickinson	1,700 0
J. Wilson & Co.*	1,699 10

* Accepted. [Rest of Wigan.]

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1903. 1903.

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TENDERS—*cont.*

Nantwich.—For the erection of a residence, with stabling, cottage, &c., at Willaston, near Nantwich, for Miss Salisbury. Mr. Henry Bushell, architect, 33 New Bridge Street, E.C. Quantities by the architect :—

S. Redhouse	£4,469 0 0
J. Harding	4,445 13 7
J. Morrey	4,285 4 6
J. T. Gresty,* Willaston	4,088 15 0

* Accepted.

Weymouth.—For constructing a public convenience under the esplanade, near the cabmen's shelter, with the necessary sewers, drains, manholes, inspection chambers, Adams's sewage lift, fences, &c., for the Weymouth and Melcombe Regis Urban District Council. Mr. W. B. Morgan, borough engineer and surveyor :—

J. G. Wells & Co., St. Thomas Street ..	£1,494
J. A. Bartlett, Rodwell Works	1,097
J. Purchase, Victoria Street	1,080
G. F. Bowring, 87 St. Thomas Street ..	1,075
J. T. Whettam, jun.,* Grange Road	1,070

* Accepted.

Coming Events.

Wednesday Jan. 28.

NORTHERN ARCHITECTURAL ASSOCIATION.—Mr. Ralph Hedley, R.B.A., on "Sketching in Charcoal," 7.30 p.m.

EDINBURGH ARCHITECTURAL ASSOCIATION (Associates' Meeting).—Mr. J. A. T. Houston on "Some Cambridge Colleges," 8 p.m.

SOCIETY OF ARTS.—Mr. Dixon H. Davies on "The Cost of Municipal Trading," 8 p.m.

ARCHITECTURAL ASSOCIATION (Discussion Section).—Mr. T. Norman Dinwiddy on "Poor Law Buildings," 7.30 p.m.

Thursday, Jan. 29.

SOCIETY OF ANTIQUARIES OF LONDON.—Meeting at 8.30 p.m.

ARCHITECTURAL ASSOCIATION OF IRELAND.—Demonstration on Timber at Messrs. T. & C. Martin, Ltd., 82, North Wall, Dublin.

LEEDS AND YORKSHIRE ARCHITECTURAL ASSOCIATION.—Mr. Edward R. Taylor on "Pottery and Tiles," and Mr. W. Gilbert on "Metal Work," 6.30 p.m.

Friday, Jan. 30.

ROYAL INSTITUTION.—Prof. W. E. Dalby, M.A., B.Sc., M.I.C.E., on "Vibration Problems in Engineering Science," 9 p.m.

ART WORKERS' GUILD.—Paper on "Pavements," 8 p.m.

INSTITUTION OF CIVIL ENGINEERS (Students' Meeting).—Mr. J. R. MacIntosh, B.Sc., on "The Design of the Electrical Equipment of a Light Railway," 8 p.m.

Saturday, Jan. 31.

BUILDERS' FOREMEN'S ASSOCIATION.—Mr. E. Trent on "Constructional Ironwork as applied to Buildings."

Monday, Feb. 2.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.—President's Address to Students. Presentation of Prizes. 8 p.m.

LIVERPOOL ARCHITECTURAL SOCIETY.—Mr. James Smithies on "Decorated Metal Work."

Tuesday, Feb. 3.

SOCIETY OF ARTS (Applied Art Section).—Mr. Douglas Cockerell on "Technical Education in connection with the Book-producing Trades," 8 p.m.

GLASGOW ARCHITECTURAL ASSOCIATION.—Smoking Concert.

Wednesday, Feb. 4.

RUSKIN SOCIETY OF BIRMINGHAM.—Sir Henry H. Howorth on "John Ruskin." Mr. A. Hunter Crawford on "The Building of a House"—II. 7.45 p.m.

SOCIETY OF ARTS.—Mr. W. L. H. Hamilton on "Methods of Mosaic Construction," 8 p.m.

NORTHERN ARCHITECTURAL ASSOCIATION.—Mr. Allan Greenwell, F.G.S., A.M.I.C.E., on "Bitumen: its application in Architecture and Engineering," 7.30 p.m.

INSTITUTE OF SANITARY ENGINEERS. — Special Meeting of Council at 7 p.m.

Thursday, Feb. 5.

SOCIETY OF ANTIQUARIES OF LONDON.—Meeting at 8.30 p.m.

CHEMICAL SOCIETY.—Meeting at 8 p.m.

ARCHITECTURAL ASSOCIATION OF IRELAND.—Technical Demonstation at Messrs. T. & C. Martin, Ltd., 82, North Wall, Dublin.

Friday, Feb. 6.

GLASGOW TECHNICAL COLLEGE ARCHITECTURAL CRAFTSMEN'S SOCIETY. — Mr. David Skinner on "Construction of Timber Staircases," 8 p.m.

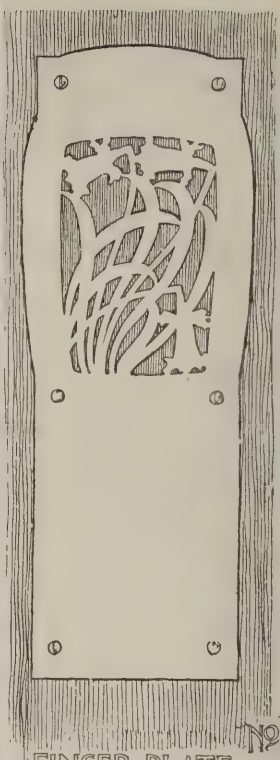
ARCHITECTURAL ASSOCIATION.—Prof. G. Baldwin Brown, M.A., on "What is the real value of Greek Work to the Modern Artist?" 7.30 p.m.

INSTITUTION OF JUNIOR ENGINEERS. — Mr. W. Garnet Wernham on "Calorimetry," 8 p.m.

Saturday, Feb. 7.

GLASGOW AND WEST OF SCOTLAND TECHNICAL COLLEGE ARCHITECTURAL CRAFTSMEN'S SOCIETY.—Mr. F. J. Rowan, A.M.I.C.E., M.I.E.S., on "The Science of Steam Generation," 7.30 p.m.

BRITISH INSTITUTE OF CERTIFIED CARPENTERS. —Visit to the London Wall Estate Buildings at 3 p.m., by permission of Mr. H. Phillips Fletcher. Meeting at Carpenters' Hall at 6 p.m.



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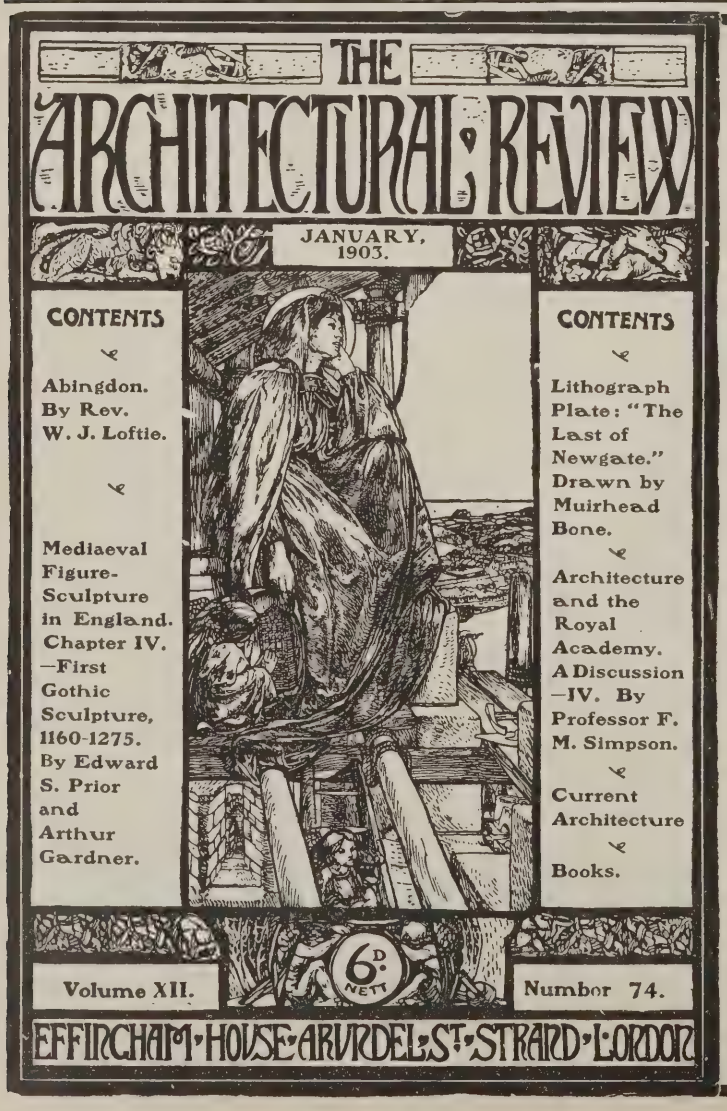
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The Architectural Review

FOR JANUARY.

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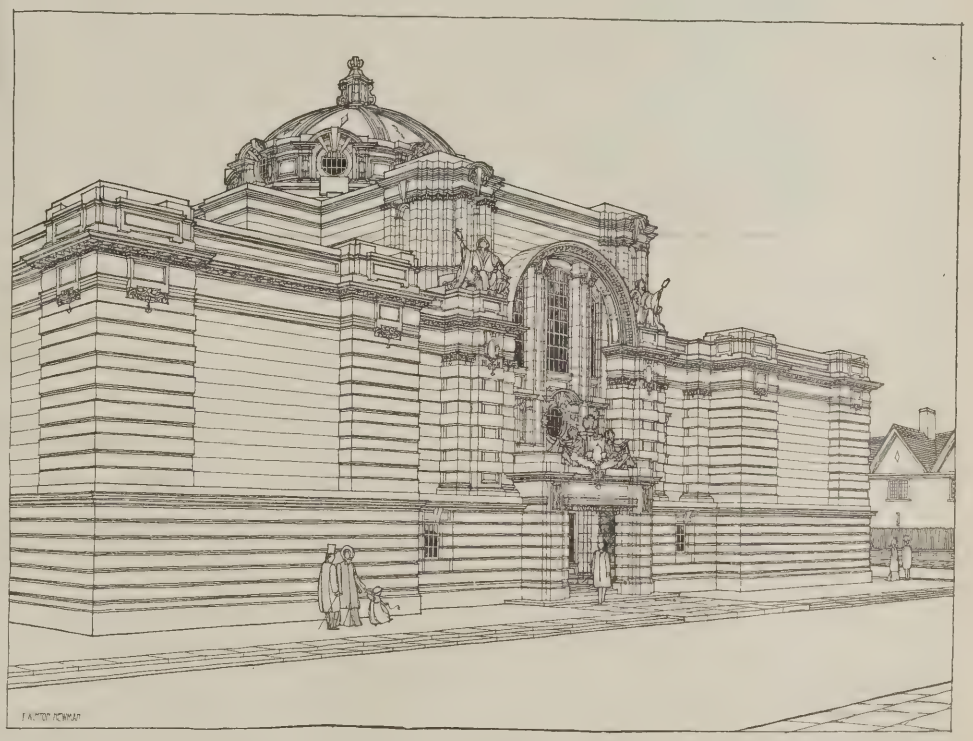
An Architectural Causerie.

The Colney Hatch Fire.

The horrifying disaster which occurred last Tuesday has again called the attention of the public to the dangers from fire and the necessity for careful attention being paid to their diminution. The almost culpable negligence of all responsible for such a state of affairs as at Colney Hatch is not quite so typical as the daily press would have us suppose, but nevertheless there is a great want of knowledge with regard to methods of fire-prevention displayed by even architects, who are perhaps most directly concerned. Architects are morally responsible if they do not insist upon proper provision being made in buildings which house a considerable number of persons. If the local authorities do not know their duty, architects should know theirs. The awful loss of life at Colney Hatch is traceable to several causes, which all added together to aggravate the case. In the first place, a temporary pavilion should never have been erected. It is not sufficient for the great increase in the number of lunatics to be pointed to: and for the dilatoriness of the Local Government Board in passing plans to be referred to; that is no excuse for temporary buildings to be used for seven years, and probably for several more if they had not been destroyed. Then the buildings were badly planned, and proper consideration was not given to the materials employed. We should not have thought it possible in this enlightened age for a building housing 330 persons, some very infirm and all mentally deficient, to be confined in a series of pavilions built of timber framing, covered on the outside with galvanised corrugated iron sheets, and matchboarded inside (roof and walls) with pitch-pine, all communicated by a closed-in corridor of similar construction, under which ran the hot-water pipes for heating the buildings. As Mr. Edwin T. Hall, F.R.I.B.A., pointed out in a letter to the "Times," the corridor should have either been an open covered way, such as is usual in fever hospitals, with or without iron railings, or, if it was necessary to enclose it, the walls and floor should have been built of brick or concrete walls with side windows and an iron and glass roof, which would break when a fire occurred and so give a vent for the flames and smoke into the open air. The trough under the corridor floor allowed the fire to rush along. The heating of the buildings to about 60 degs. F. desiccated the wood, leaving it almost like tinder, so that when the fire caught it the progress of the flames was not arrested in the slightest, and the raising of the floor on brick foundation walls gave opportunity for the air to enter from this ventilating space and fan the flames. The pavilions should have been kept further apart to prevent fire spreading from one to the other across the open space. Then the felt which was used as a lining to the matchboarding and the linoleum on the floors created a black nauseating, blinding, suffocating smoke which hindered the rescuers sorely. Again, the exit doors, though large enough to clear the building in ordinary circumstances in thirty seconds, were kept locked, the keys being in the possession of the night nurses, and it never seemed to have occurred to those responsible that if a high wall had been built round at some safe distance from the pavilions there would have been no fear of escape, and could have got all out if panic bolts had been used. But, to cap it all, no automatic sprinklers were adopted, as they should have been throughout the buildings. These temporary erections were built by the Works Department of the London County Council; and though automatic sprinklers are installed throughout their offices, where there is less need, as no one sleeps therein at nights, yet at Colney Hatch they were absent. These sprinklers are brought into action by the agency of the fire itself, and undoubtedly if they had been used most of the lives would have been saved. How comes it that these plans and arrangements were passed by the Lunacy Commissioners and the Home Secretary? The London County Council is particularly strict in seeing that temporary buildings shall not be erected by private persons where there is the slightest danger, and in forcing theatres and factories to be efficiently protected, yet, when it comes to their own buildings they neglect all this, to save a little expense and trouble. Another difficulty was that although there were fire hydrants in each ward the supply of water from the asylum well was not available owing to the pumps being in course of repair, and it appears that water could not be obtained until it was turned on from the Barnet Water Company's mains. The number of firemen engaged at the asylum was inadequate, too, for the extent of the buildings—namely, sixteen men where 2,500 patients are housed.

Sir William Emerson, writing to the "Times," says: "Surely some stringent law should be passed prohibiting the housing of persons (and helpless ones) in buildings constructed on such unsafe principles. I sincerely trust that the Royal Institute of British Architects and the Institute of Surveyors, and others who really know about building and its proper construction, will take steps to urge the necessity for legalized inspection and prohibition of housing inmates of such institutions in non-fireproof structures." It is to be hoped that the suggestion will be acted on by these societies.

Another aspect is touched on by Mr. Edwin O. Sachs, the chairman of the Executive, British Fire Prevention Committee, when he says: "A national interest in fire-prevention can only be aroused through the medium of the great newspapers of London and the provinces, and I venture to suggest that if the same serious attention were paid by the Press to matters of fire-prevention as to the question of hygiene, more would be done to familiarize the public with the necessary precautions and safeguards against fire than by any amount of 'panic legislation.' If the serious aspect of a fire, and the lessons it teaches, were dwelt upon by the popular Press which reaches the hands of the smaller tradesmen, in place of detailed gruesome descriptions or sensational 'revelations,' this alone would be a step in the right direction. Public opinion has to be so educated that every house-owner or shopkeeper shall pay equal attention to safety from fire as to his drainage, and it is the Press of this country that I principally look to bring about this desirable reform."



A PICTURE GALLERY FOR A COUNTRY TOWN. F. WINTON NEWMAN, ARCHITECT.



LYDIATE HALL LANCASHIRE.

SOME LESSER LANCASHIRE HALLS.

By F. H. CHEETHAM.

LANCASHIRE cannot boast the wealth of architectural interest possessed by many of the midland and southern counties of England, yet in her own way she has much to offer, and the very common idea that she is given over entirely to manufacture and commerce, with all their inartistic accompaniments, is far from being the truth. Indeed, all this manufacturing energy of Lancashire is to be found in that portion of the county lying south of the river Ribble, and here again it is concentrated in particular districts rather than spread over the whole of the land. In this southern part of Lancashire between the Ribble and the Mersey there are yet large tracts of country entirely given over to agriculture, where much of the old-world spirit of a pre-railway England still remains, and where the near proximity of the large towns is hardly felt.

It is in such districts that many of the old halls and manor-houses with which Lancashire was at one time covered are yet to be seen. Some of the larger halls have been restored and modernised, and are now the residences of local families, but the smaller houses, where they have been saved from ruin and decay, have nearly all been converted into farmhouses.

It is estimated that at the commencement of the seventeenth century Lancashire possessed about 300 halls and manor-houses, great and small. The larger halls have received a fair amount of attention from local historians, and an architectural description of the more important of them will be found in Mr. Henry Taylor's excellent book on "Old Halls in Lancashire and Cheshire." Some of the most interesting of these, however, being private residences, are practically inaccessible to the architectural student, to whom they would be so great a delight. He is perforce constrained, therefore, to remain content in too many cases with a paper knowledge of these old houses, or a glimpse of their chimneys over the tree-tops.

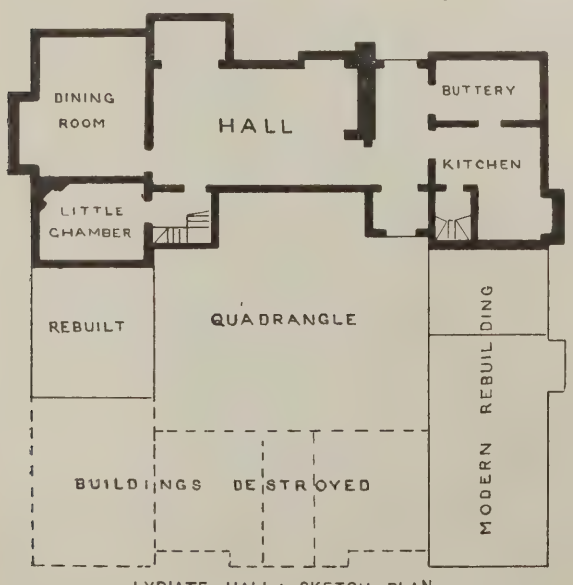
The smaller halls, however, are usually much more accessible. They were very much more numerous than the larger halls, and were occupied principally by the yeomen—the middle class of their day. Many of these houses now lie close to the road, and in not a few cases the good nature of the farmer or his wife will allow the really interested visitor to examine the house at his leisure. This, however, must not be depended upon.

The amount of attention which has been devoted to the larger houses has never been given to these lesser halls. This is the greater pity, as many of them are in such a condition that to keep them standing they are in constant need of repair, and such repairs when carried out for the convenience of the tenant generally result in the introduction of "improvements" that gradually obliterate all the distinctive features of the original building. The county histories, if mentioning these smaller houses at all, are content to merely record their existence. But a large number of them are not even referred to.

How many of the 300 halls that existed in Lancashire 300 years ago now remain has never, I believe, been ascertained. A great many of them, having been constructed wholly in wood and plaster, went to decay; others were pulled down; and those that are left to us are, therefore, the houses of superior construction—those built, if not wholly of stone or brick, at any rate on a brick or stone basement.

In that part of South-west Lancashire which lies west of a line drawn from Preston in the north to Warrington in the south are many such houses. With the exception of Liverpool and its environs, nearly the whole of this part of the country is open agricultural land. Three hundred years ago it consisted of a very large proportion of low, swampy ground interspersed with woods and growing timber, and had a scanty and somewhat isolated population. The old market-town of Ormskirk stands in the centre of this district, and the country round offers many points of interest to those of an antiquarian turn of mind. There are some interesting churches (Ormskirk, Halsall, Sefton) and there are some of the larger halls (Speke and Rufford) included within this area, but its chief interest lies, perhaps, in the number of the smaller halls that still remain.

Nearly all of these are now used as farmhouses, although the first of the four of which this article treats does not at present



LYDIATE HALL: SKETCH PLAN.

fall under that description. Lydiate may, indeed, claim to be more than a "smaller hall." It has been at one time a house of considerable importance, and can boast of having had its history written in an exhaustive quarto volume. Lydiate is situated about nine miles north of Liverpool, and the hall now stands with its principal front facing the high road from Liverpool to Southport. The building is now unoccupied, and has become sadly dilapidated. Some repairs have been attempted by the owner, but in so ignorant a manner has the work been done that all lovers of the old house can only deplore the havoc that has been wrought. Fortunately this new work is at the back of the house. Which is the sadder spectacle, the front in decay or the back restored, it would be difficult to say.

Lydiate Hall was erected, or perhaps a former house was enlarged, by Lawrence Ireland at the end of the fifteenth century. The original plan was that of a quadrangle, the buildings enclosing a spacious court. The present remains consist of the west and parts of the north and south sides, giving it the air and effect of a centre with two wings. The latter have been restored in brickwork. The house is erected on a basement of stone, and is constructed in wood and plaster. "Prior to 1760," we are told, "when it was in a more perfect state, it presented a fine specimen of the domestic architecture of the Middle Ages; a part of the north side and east front, with the principal entrance, was then standing. Subsequently, in consequence of the roof being dilapidated, they were taken down by order of the late Henry Blundell, Esq., of Ince Blundell (the then owner). This event he ever afterwards deeply regretted."

In each angle of what is now the east front, but which formerly faced the court-yard, are projecting compartments with gables. The ground-floor is lighted by a continuous series of windows which extend its full length. The porch in the northern angle has been modernised by covering the oak moulded and chamfered jambs and lintels with pilasters and panels. This was done in the eighteenth century.

The internal arrangements followed the usual plan of a central great hall, with the kitchen and offices at one end and the living rooms at the other. There was the raised daïs with canopy over and a passage through the house opposite the porch. Built in the reign of Henry VII., the great hall has not an open-timber roof, but a flat ceiling, which forms the floor of a chamber above. The hall is 32ft. long, 18ft. wide and 11ft. high. The ceiling is ornamented with massive oak beams and joists, and the canopy over the high table is elaborately carved in thirty-six panels.

The building was for a long time used as a farmhouse, and underwent so many changes during its occupation that it requires close inspection to recognise its original features. The ancient gallery over the great hall was used for a long time as a chapel for the Roman Catholics of the neighbourhood, its use for that purpose only being discontinued when the present handsome church which stands nearly opposite the Hall was built. Unfortunately, there is now no getting inside Lydiate Hall, and the visitor must be content with an examination of its exterior features.

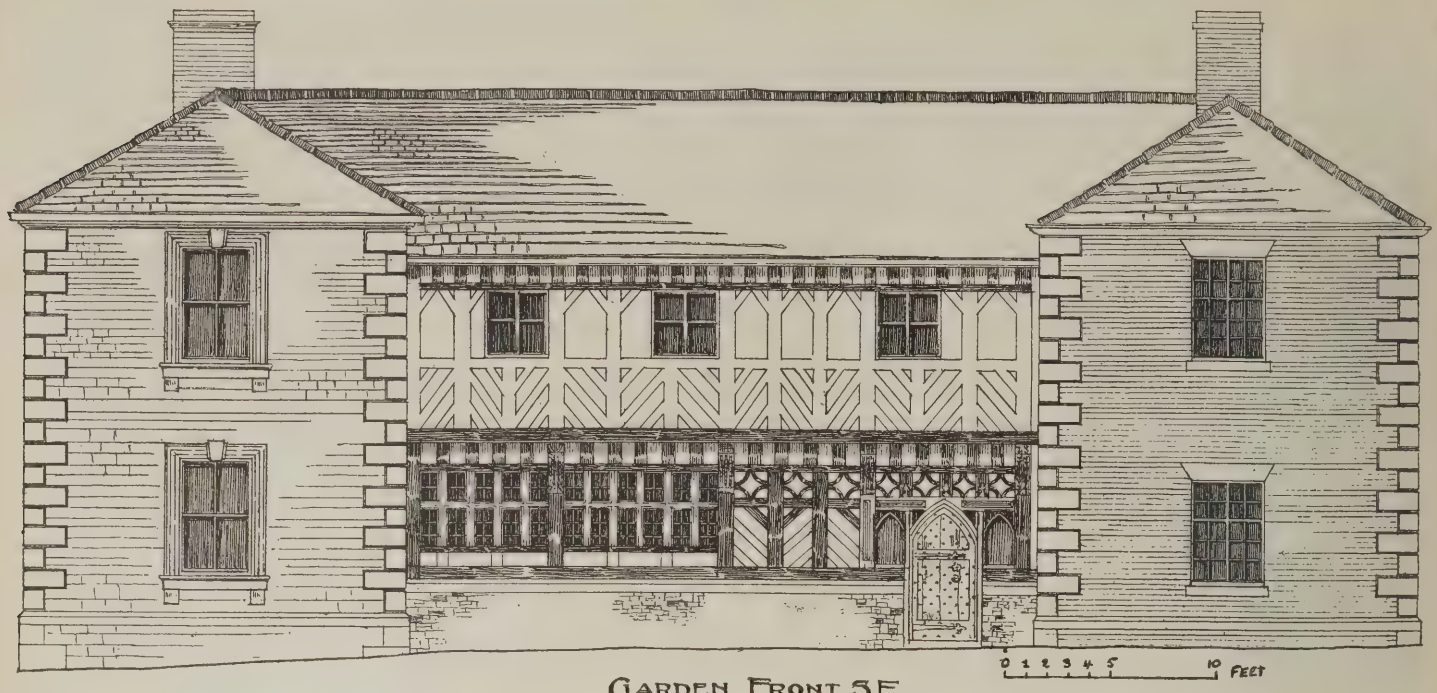
Lydiate is about four miles south-west of Ormskirk. Two miles or less from the old market town on the other side in the direction of Southport lies Hurleston Hall, an interesting old house with a centre portion of wood and plaster and brick wings. Said to date from the reign of Edward VI., the great Hall has the appearance of a rather earlier date, the roof having been open-timbered. A floor has been introduced later, but the ornamental roof principals as now seen in the rooms upstairs leave little doubt as to the great hall at Hurleston having been formerly a noble apartment. It is now a prosaic farm-kitchen, with a modern kitchen range in place of the old open fireplace. Like Lydiate, the house has undergone so many changes that what was its original appearance is something of a problem. Now a farm-house, it has lost all the distinctive features of a gentleman's dwelling. It stands a long way back from the road, amid a clump of trees and is therefore little seen. As at Lydiate,



HURLESTON HALL, NEAR ORMSKIRK, LANCASHIRE.



HURLESTON HALL, LANCASHIRE.



GARDEN FRONT SE

MAWDESLEY HALL, LANCASHIRE. MEASURED AND DRAWN BY E. EARNSHAW AND H. LANGMAN.

the timber front faces east, but is away from the road. When these houses were built they must have been quite isolated, as the present highways are entirely modern. The great hall at Hurleston measures 30ft. by 19ft. and has originally had a fine bay window 9ft. square. This bay is now a store-room and its mullioned window is bricked up. Not content with bricking up the old lights, the builder has cut away one of the mullions and inserted a modern sash window. Apart from its east front, Hurleston Hall is built entirely of brick and preserves its old roof of stone slabs. It is a "house of seven gables," and has besides a fine brick chimney which batters in a very ingenious manner. All the old windows have been bricked up and wide modern sashes inserted, and where the timber on the east front has gone past repair the plasterer and painter have not hesitated to "restore" it to its original appearance. All the quatrefoils are thus painted on plaster. Hurleston is picturesque in its decay, but its great interest is in the architectural problem that an examination of the house presents.

Mawdesley Hall lies in an out-of-the-way district about ten miles south of Preston. In plan it is very similar to Hurleston, and has the same feature of the black and white central portion facing east. It is, however, of much later date, the great hall (the oldest portion of the house) being supposed to have been built by Robert Mawdesley, who died in 1659. The south wing is built in red sandstone with yellow stone dressings and quoins. This wing has a very pronounced Renaissance character, the windows having corbelled sills, architraves and keystones. The north wing is built in brick, but the front wall is now entirely covered with ivy. The roofs are covered with stone slabs and are hipped back from the wings with very good effect. The recessed timber portion is in two storeys, the upper one projecting and carried by carved brackets and a plaster cove. Unfortunately here, as at Hurleston, a great deal of this timberwork is sham, being, no doubt, a restoration in paint of the original design. What is most pleasing about the exterior of Mawdesley Hall is the delightful colour of the building. The combination of "black and white," red and yellow stone, red brick, green ivy, and grey stone slates is beautiful in the extreme.

The great hall is at present 21ft. long by 17ft. 6in. wide, but has probably been 9ft. longer. The walls are panelled in oak, and the fireplace has over it an interesting stone panel on which are carved the Mawdesley arms and the date 1655. On the mantelpiece below is the date 1625. The back of the house shows a rather good stone chimney of two shafts, the lower portion of which is, however, whitewashed. Mawdesley Hall is more strikingly situated than either Lydiate or Hurleston. It stands on the top of an outcrop of red sandstone rock overlooking the road, and was originally approached directly from the road up a rocky incline and a flight of ten stone steps. These steps and the built-up wall of the garden in front of the house form a very picturesque feature. A circular recess at the top of the steps bears a stone with the initials R. M. and the date 1653.

Of an entirely different character from Lydiate, Hurleston, or Mawdesley, is Carr House, near Much Hoole, the reputed residence of Jeremiah Horrocks, the astronomer. Carr House is built entirely in brick with stone dressings, and has suffered less externally than most of the old houses of the district. The roof, it is true, is covered with modern blue slates, which are a poor substitute for the stone slabs that no doubt were originally there; and one of the mullioned windows has been bricked up. But no square sashes have been inserted, and for this mercy we can forgive the removal of the old leaded panes. The feature of the house is the boldly projecting porch which rises in a third storey above the roof of the house. The redness of the brickwork is relieved by a large diaper pattern in blue bricks over the whole front of the house. After the weathering of nearly three hundred years the pattern is not at all obtrusive, as it very well may have been at one time, and in a photograph it does not show at all. The main front here faces south. The history of Carr House is carved in stone over the doorway:—"Thomas Stones of London, haberdasher, and Andrew Stones of Amsterdam, merchant, hath builded this house of their own charges and giveth the same unto their brother John Stones, anno domini 1613. Laus." The latter part of the inscription is curiously broken by the head of the doorway.

The upper rooms were formerly panelled in oak, and so remained till the middle of the last century, when the panelling was removed to Bank Hall, an adjoining residence. The walls are now quite bare.

Quite apart from its architectural interest, Carr House deserves notice as being the reputed residence of Jeremiah Horrocks at the time when he discovered the transit of Venus in 1639. Horrocks was then curate at Hoole. The church is about half a mile away, and there is nothing improbable in the conjecture that Horrocks lodged in the house of Mr. Stones during his curacy. A former rector of Hoole used to please himself in thinking that the centre room on the first floor with the bay window over the porch was that in which Horrocks observed the passing of the shadow.

The above-named halls are only four, taken almost at random from a large number of interesting old houses in the south-west portion of Lancashire between the rivers Ribble and Mersey. Baines, in his well-known history of the county, dismisses Lydiate, Mawdesley and Carr House with something like four lines apiece, and to Hurleston he devotes but two lines. Since his day, however, local antiquarian research has given a good deal of information to the world about some of these old houses in the pages of the "Transactions of the Historic Society of Lancashire and Cheshire," to various papers in which as well as to his own observation the present writer is indebted.

The new Parish Church of All Saint's, Cardiff, was opened last week. The old church was built over fifty years ago in another part of the parish, but the community ultimately became almost completely Roman Catholic. In 1899 the building was disposed of to the Great Western Railway Company, who have now adapted it for the purpose of an electric light generating station, utilising the spire as a chimney stack. The new church has been built at a cost of £3,000.

THE LEGAL RIGHTS AND LIABILITIES OF ARCHITECTS AND SURVEYORS.*

By H. H. RICHARDSON, Solicitor, Clement's Inn Prizeman, 1879, Hon. M.S.A.

IT may with safety be stated that neither architects nor surveyors have any rights or liabilities simply as such. They do not, like members of the legal or medical professions, require any legal qualification to practise. They are not subject to any legal restrictions or regulations as to their professional conduct or remuneration. Any person, however ill-qualified, may set up and practise as an architect or surveyor, or as both, and if, being so ill-qualified, he can induce the public to employ him, so much the better for him and so much the worse for the public. It is true that as some protection and guarantee for the public, as well as in the interests of the respective professions and for the mutual benefit of their members, societies of architects and surveyors have been formed, and have framed rules as to professional etiquette and remuneration, but these rules only bind the members as a condition of membership. They have no binding legal effect whatever.

What then are the rights and liabilities proper for our present consideration? They will be found for the most part to depend upon the law of agency, and upon the position in which the architect or surveyor is so frequently placed as the agent of the employer or building owner in superintending works to be carried out for such employer or building owner under what is known as a building contract. Attention may here be drawn to the fact that a very great part, if not the greater part, of all legal problems and complications in matters and between persons, of every kind, arise from

This Law and Position of Agency.

Disputes or litigation between two individuals or parties not complicated by any question of agency on the part of either of them or of any other parties are usually of a more or less simple character. Such disputes or litigation are most frequently upon some simple question of contract, the point being whether there was any and what contract, whether there has been a breach of it, and what is the legal right or remedy in respect of such breach, and in such cases the question is usually one of evidence rather than law. So it is with simple questions between architects or surveyors and other persons directly and apart from questions of agency. If I employ an architect to prepare me a plan or a surveyor to measure up a piece of land or get out some other quantities, and he performs the work with the skill reasonably to be expected, he is entitled to be paid the stipulated or reasonable remuneration, and upon his being so paid the transaction is at an end. Such a simple transaction is in all respects similar to a bargain made, for example, with a portrait-painter to paint a portrait. I may not like or use the plan prepared for me; I may not like the portrait, and may prefer to hang it in the back bedroom, or with its face to the wall, but if it has been done with such reasonable skill as aforesaid I am bound to pay for it. If the usual transactions with architects or surveyors were of this simple nature there would hardly be more occasion to consider the rights and liabilities incident to the practice of these professions than there would be to consider those of portrait-painters, photographers or the like. Such, however, is very far from being the case. The terms of their employment usually involve not only the designing or suggestion of works, but their supervision of the works designed or suggested whilst in progress for the purpose of seeing that they are duly executed in accordance with the plans and specifications. This brings them into relation with other parties, and it is this relationship which gives rise to so many of the rights and liabilities proposed to be considered.

It appears from the foregoing introduction that the particular rights and liabilities so to be considered usually arise under what are known as building contracts, or contracts of the like nature, and that the chief of them are incident to the position of the architect or surveyor as the agent of the employer. Those familiar with such contracts are aware that, in addition to his position as agent, the architect or surveyor is, for the prevention of disputes, invested with certain judicial or arbitrative functions which give rise to other rights and liabilities to be considered in their due place. Having thus outlined the scope of the address and the subjects for consideration, I now propose to deal with those subjects in detail and under the following heads, that is to say:—

(1) The proper qualifications of the architect or surveyor.

(2) The position of the architect or surveyor under simple contracts of employment not involving or apart from questions of agency.

(3) The position of the architect or surveyor as agent of the employer under building contracts or the like; and

(4) The position of the architect or surveyor in his quasi-judicial capacity or as arbitrator under building contracts or the like.



MAWDESLEY HALL, LANCASHIRE.



GATEWAY MAWDESLEY HALL.

Proper Qualifications.

I have used the term *proper* qualifications advisedly, for it has already been seen that no qualification is legally necessary. If, therefore, they do the work so badly or carelessly as to indicate lack of the required skill, they will be unable to recover remuneration for it, and might be made liable for damages should loss or injury result from negligent or unskilful work. I believe that in France an architect has been held criminally liable for the death of a man killed by the fall of a building owing to its defective design; and though I am not aware of any such case in England circumstances could be conceived in which under the English Criminal Law a negligent architect could be so made liable. As regards the matters in which skill or knowledge is required to make a competent architect or surveyor they may be generally stated as follows, that is to say:—

(*a*) Skill in the preparation of plans, drawings or designs suitable for the particular work to be executed; or, in the case of surveyors, skill in the measurement or surveying of land or in suggesting plans or ideas for the development thereof.

(*b*) Knowledge of the materials to be used and of the proper application or use of such materials.

(*c*) Knowledge of Building Acts and the requirements of local authorities, and of the law as to light and air, support or other easements.

If through ignorance or neglect of any of these matters the work designed or suggested should prove to be impracticable or fail, that would be evidence of such want of proper skill on the part of the architect or surveyor as to disentitle him to remuneration. But although persons undertaking to do work requiring certain skill impliedly guarantee that they have such skill, yet if an employer deliberately employs for the carrying out of important works requiring high and special skill a person whom he knows has not enjoyed a practice likely to give him the requisite experience and knowledge, he would not in the absence of special guarantee or representations of sufficient knowledge and experience be entitled to recover damages from the architect or surveyor in the event of the work proving unsatisfactory (see *Macassey and Straham* on Civil Engineers, pp 36 and 37, and the case of *Henry and Belfast Board of Guardians*, cited on p. 39).

As regards requirements (*a*) and (*b*) little more need be said. What is expected of

* Summary of a paper read before the Society of Architects on Thursday January 22nd.

architects and surveyors in these respects is pretty generally understood.

As regards (*c*), it is obvious that a lack of acquaintance with statutory or local requirements or with the rights of adjoining or neighbouring owners may render a plan or suggested works, however otherwise excellent, impracticable and useless; and it is therefore of the utmost importance that architects and surveyors should be thoroughly familiar with such requirements and rights.

In this connection it may be pointed out how important it is to architects and surveyors, in their own interests, to know what contracts—in order to be binding—require to be in writing under the Statute of Frauds, and what require to be under seal. Under the Statute of Frauds contracts relating to land, and also contracts the performance of which must necessarily extend beyond a year, require to be in writing, signed by the party to be charged, and contracts with corporations require generally to be under seal; and architects and surveyors in dealing with corporations should therefore be on their guard against relying on memoranda or writings merely signed by an officer of the corporation.

Position of Architect under Contract.

Passing to a consideration of the position under simple contracts not involving or apart from questions of agency, the architect or surveyor stands in the position of a skilled servant, and in it he will be expected to possess and properly display such skill and knowledge as has been already indicated, and moreover to perform the duties he undertakes with such care, attention and fidelity as to free him from any charge of negligence. The simplest cases of such position and employment are those where the architect or surveyor is employed to prepare plans or designs, or make suggestions for works without reference to the question by whom such works are to be carried out, or superintended, or whether they are to be carried out at all. The simple bargain in such cases is—stipulated work to be done with proper skill on one part, and the stipulated or a reasonable payment therefore on the other.

One or two points, applicable alike to such simple contracts of employment and to contracts involving agency, may be rapidly noticed. As already stated, the contract may be for a period of employment greater than a year, and so may require to be in writing under the Statute of Frauds, signed by the party to be charged. It may be with a corporation, and so require, generally, to be under seal The plans, designs or suggestions may be ordered for the approval of the employer, and, if this is clear, nothing is payable for them unless they are approved or at any rate used (see *Moffat* v. *Dickson*, 22 L.J., c.p. 268.

They may be sent in in response to an invitation to compete, in which case, unless remuneration is offered by the terms of the invitation to unsuccessful competitors, they will not be entitled to any unless their plans or designs are actually made use of. Under this head the question of ownership of plans and designs may be considered. Does the employer, when employing an architect or surveyor in the usual way, purchase the plans, drawings or designs, or only the use of them for the purposes of the designed works? It was formerly considered that by the custom of the profession the latter was the case, and that the drawings remained the property of the architect, notwithstanding payment. The contrary, however, appears to be now settled by the case of *Ebdy* v. *Gowan* (*Times* of July 7th, 1870), and whatever may be said with respect to the ownership of plans prepared for the purposes of works to be carried out under the superintendence of the architect, it is impossible to doubt that where an architect is simply employed to prepare a plan or design without more and without definite agreement to the contrary, the plan or design would, upon payment therefor, be as much the property of the employer as a portrait ordered to be painted for him and duly paid for. If the effect of the bargain is to give the property or the plans to the employer, it is clear that he can use them for any purpose he pleases, and need not confine their use to the purpose for which they were originally prepared or intended.

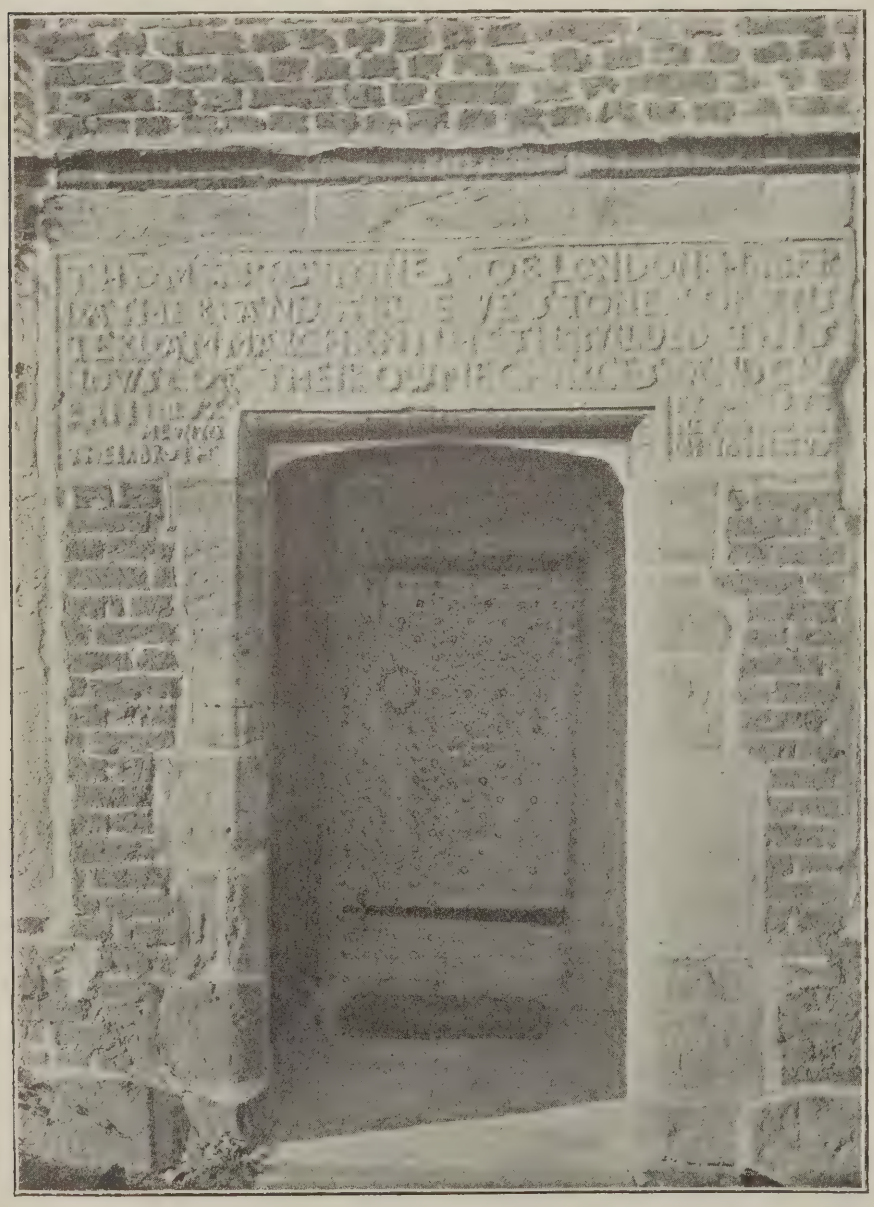
The contract between the employer and an architect or surveyor is a personal one, and the employer is entitled to have the work done or superintended by the architect or surveyor personally. Consequently the death of the architect or surveyor terminates the contract, though that of the employer does not necessarily do so, and his executors may under the contract be entitled to have it carried out for the benefit of the employer's estate. Should the architect or surveyor die before the completion of the work, and before any payment has become due for it, he would not, in the absence of agreement to the contrary, be able to recover any payment, but if his services had been retained at a salary he could recover so much of the salary as had become due at the date of the death (see *Stubbs* v. *The Holyhead Railway Co.*, L.R. 2, Ex. 311).

Apart from the strict practice of their respective professions, architects and surveyors may, like other professional persons, be employed to give evidence before Parliamentary Committees or the like in support or in opposition to some particular measure—or to give expert evidence in a court of law. In such cases they are of course entitled to be paid proper fees, having regard to their standing and reputation. They are also in practice frequently employed as valuers, and although as before stated they are not in their ordinary professional capacity hedged about by legislation, yet if they act as valuers or appraisers it appears that they should take out qualifying licences therefore under 46 Geo. III., c. 42, ss. 4 and 7; or 809 Victic. 76, sec. 1.

As regards protection from libel or slander, architects and surveyors have, of course, the like rights and remedies as other people. It would be libellous to write and slanderous to say of an architect or surveyor that he was incompetent, or that he had not sufficient skill, knowledge or experience for the carrying out of any work undertaken by him (see *Botterell* v. *Whitehead*, 42 L.T., N.S. 588).

Liabilities as Agents.

With this summary survey of the rights of architects and surveyors as skilled servants, we can now proceed to consider the more



[*Copyright Photograph by Charles Woodall.*

DOORWAY, CARR HOUSE, LANCASHIRE.



CARR HOUSE, MUCH HOOLE, LANCASHIRE. [*Copyright Photograph by Charles Woodall.*

important question of their rights and liabilities as agents or otherwise under building contracts or the like. These come under heads (3) and (4) above mentioned. First then we deal with head (3), that is to say, the position and authority of the architect or surveyor as agent of the employer. The owner having satisfied himself that a building or work erected or done in accordance with the prepared plans or designs will be what he wants, employs a builder or contractor so to erect or do it and an architect or surveyor to see that it is so erected or done. He thus constitutes the architect or surveyor his agent for the purpose of seeing the desired work carried out. Now agency is of two kinds. A man may appoint another to be his agent simply for some particular purpose or purposes—as in the case of an agent or attorney appointed to execute some particular deed or deeds, or to give receipts in some particular matters. In such cases the person to whom the deed is to be executed or the receipts given must see that the agent has that particular power, otherwise he may find that the principal is not bound. He cannot rely upon the mere word of the agent that he has the professed power. On the other hand, he may appoint someone to be his general agent to do all such things as may be necessary or proper for some purpose or undertaking. In such cases the authority given is an authority to act in a certain capacity for all the purposes of the undertaking in question. A person put forward to act as such general agent can bind his principal by all acts within the scope of his employment, although the principal may have privately limited his authority in particular matters. The position of the architect or surveyor under a building contract is one of general agency, and his position as such general agent as appears from the leading case of *Kimberley* v. *Dick*, L.R. 13, Eq. 1, or where, in connection with the question of the character in which the architect was to be considered under the term of a building contract. "I am of opinion that I must treat Mr. White (the architect) as the agent of Mr. Dick (the building owner) generally, for all purposes connected with this building, and that without any limitation as to price or anything else." The decision of the case upon the point is thus summarised by Mr. Roscoe in his useful digest of building cases: "The architect is the agent of the employer generally for all purposes connected with the structure of which he has prepared plans, and the erection of which he is to superintend."

The general principle is thus laid down and established. The bearings of it lie "in the application of it," that is to say, when any question arises as to the employer's liability for the acts or orders of the architect or surveyor, such question will usually be found to depend upon whether such act or order was in fact within the scope of the general authority given.

If an agent falsely represents that he has an authority which he has not, and thereby induces another person to act on the faith of his representation, that is a fraud for which if the person so induced to act is thereby injured he could recover damages (see *Randall* v. *Trimen*, 18 C.B. 786). Of course, as between himself and his employer simply, the position of the architect or surveyor under a building contract is still that of a skilled servant, and the same skill, knowledge and care requisite in the preparation of the design must continue to be shown in the superintendence of the work, and for any neglect of his duty in this respect the architect or surveyor might be made liable. Questions as to the extent of the architect's or surveyor's authority under a building contract most frequently arise in respect of the following matters, viz.:—

(*a*) Alterations and deviations from plans.
(*b*) Extra work.
(*c*) Authority to employ quantity surveyor; and
(*d*) Certificate.

In properly drawn building contracts all these matters are carefully provided for, and, in so far as they are so, the rights and liabilities of the parties will be determined by reference to the particular provisions. In the absence of special provision the authority of the architect as the general agent of the employer does not extend so as to entitle him to permit any alterations or a deviation from the accepted plans, or to order any extra work to be done. If, therefore, he permits or orders any such alterations or extra work, he will not thereby bind the employer, and may render himself personally liable to the contractor. Of course, in all these cases the unauthorized order may be accepted and ratified by the employer, but architects and surveyors will be well advised to avoid any risk by keeping well within the bounds of their general authority as limited or extended by the contract, and in the event of anything appearing desirable to be done, but of doubtful authority, to obtain clear written directions and authority for the execution of any alterations or extra work.

It is usually provided that no extra work shall be done without a written order of the architect, and in such a case a written order is a condition precedent to payment for such work, and its mere inclusion in an interim certificate will not prevent the employer from objecting to payment on final adjustment. (See *Tharsus Sulphur, &c., Co.* v. *McElroy*, 3 App. Cas., 1040.)

It is necessary to keep in view the position of the architect or surveyor as agency and the main principles of the law of agency, viz., that the agent must not exceed the limits of his authority, otherwise the principal will not be bound, and that persons dealing with the agent must be satisfied that he has the authority he claims, either under the instrument of his appointment or as coming within the scope of authority as general agent for the purpose in hand.

As regards (*c*), it does not appear to have been anywhere laid down that power to employ a quantity surveyor comes within the scope of the architect's authority simply as agent of the employer under a building contract, and his right to do so, if it exists,

appears to depend upon custom. (See *Moon* v. *Witney Union Guardians*, 3 Bing, N.C. 814.)

(*d*) Certificates. The position of the architect or surveyor with respect to the giving or withholding of certificates is of the highest importance, and may be regarded from the point of view of the architect or surveyor—(1) as skilled servant; (2) as agent of the employer; and (3) as arbitrator. As skilled servant he must have and use the skill necessary to show that the work certified for has been properly done, and failure in this respect will amount to negligence for which he will be liable to his employer.

(2). As agent of the employer he must act in his interest without collusion or any other surreptitious dealing.

(3) As arbitrator he must honestly and impartially exercise the quasi-judicial functions entrusted to him.

In granting or withholding certificates the architect's conduct (apart from collusion or fraud) cannot be impugned, and his decision is final. But wilfully to certify work to be done when it is not done is a fraud upon the employer, for which he would be liable, and collusively to withhold a certificate properly due would be a fraud upon the contractor. But mere negligence or want of skill in granting or withholding a certificate is not sufficient ground for impeaching the certificate, though, as regards the employer whose skilled servant he is, negligence in granting a certificate for work not properly done would render the architect or surveyor liable.

The almost autocratic power put into the hands of the architect under the usual terms of a building contract has often been alleged as a ground of complaint on the part of the builder or contractor—whether such complaint is just, or what alterations likely to be accepted are proposed, would be fitting and interesting subjects for discussion in a paper on the rights and liabilities of builders and contractors. Suffice it to say here that, owing to competition, the employer is generally in a position to dictate his terms, and that, from the point of view of the architect or surveyor, he very naturally claims, not only as agent of the employer but in the interests of his own reputation, to be put into a position which will enable him to see that the works designed by his skill are not jeopardized by any want of skill or care or honesty on the part of those employed to carry them out. Even-handed justice to the contractor must be what no doubt in the vast majority of cases is found—the fairness, integrity and high-mindedness of those into whose hands these powers are put.

This brings us to the last of our four heads, namely (4). The position of the architect in his judicial capacity or as arbitrator. This, as has been seen, arises to some extent in connection with the question of certificates, but what is here more specially referred to is the position of the architect or surveyor as dispute preventer. If it is clear from the contract that the parties have agreed that he shall so act, they must be taken to have conferred upon him a judicial capacity.

His decision is final, unless some appeal is provided, and cannot be impeached for want of proper care or skill or upon any ground but that of fraud. Nor must he do or be party to anything which would interfere with the proper impartiality of his position. Upon this point there is an interesting decision—that of *Kemp* v. *Rose*, 1 Giff. 258, where an architect having undertaken to his employer that the cost of the proposed work should not exceed a certain sum, it was held that he did not possess a sufficiently unbiased mind to make his decision against the contractor just and conclusive.

The above survey will suffice to show the general principles upon which questions relating to such positions must be decided, that is to say, the principles applicable to the relationship of (*a*) employer and skilled servant; (*b*) principal and agent and scope of agent's authority; and (*c*) arbitrator and disputants. Many interesting subsidiary questions remain to be considered, such, for instance, as the position and right of appointment of clerks of the works, the particular duties of quantity surveyors, the position of architects or surveyors with respect to questions of light and air, or the like. These, however, do not give rise to any different rights or liabilities, and are sufficient in themselves for independent papers.

THE WELLINGTON MONUMENT.

THE controversy over the completion of this monument which we reviewed in our last issue still continues, but shows already definite signs of exhaustion. This may be attributed to the conciliatory disposition shown by the Executive Committee and its expressed determination to adhere as closely as possible both in form and spirit to Stevens's design, but much more to a powerful letter in the "Times" from Mr. Hamo Thornycroft, R.A., which is practically a plea for fair-play for a brother-sculptor. Mr. Thornycroft says:—

"Now that a definite arrangement has been arrived at regarding the completion of the Wellington Monument in St. Paul's, and that a sculptor has been appointed to carry it out, the only thing of importance is that the work may be done with a proper and complete reverence for the existing, though unfinished, handiwork of the sculptor Alfred Stevens. As explained in a letter in your issue of the 24th, there is ample material to indicate how the master would have finished the work; and, indeed, it would seem that not much further modelling is required—the less, of course, the better—before the work could be placed in the bronze-founder's hands. I am confident that the more the appointed sculptor sinks his own individuality and leaves the work of Stevens intact, rough though it be, the more he will gain the respect of his fellow-craftsmen and, no doubt, of the committee who has entrusted the work to him. It is satisfactory to see it stated that Stevens's original model of the equestrian statue shall remain untouched, so that all interested in the monument may see before the casting into bronze takes place how far this model has been adhered to in the model prepared for the bronze-founder."

The sentiment of this letter will appeal to all impartially-minded people. Now that the Committee has stated that Mr. Tweed's model will be exhibited, together with the models and drawings prepared by Stevens, before casting, it is obvious to an unbiased mind that present criticism is not only useless but in questionable taste. Mr. Spielmann is not, however, deterred from another attempt to prove Mr. Tweed's unfitness for the work entrusted to him, a course that is all beside the mark. Whether Mr. Tweed is capable or not will be amply apparent when his model is prepared. His position as a sculptor cannot be decided by the number of times he has exhibited at the Academy. Mr. Spielmann exposes the hollowness of the agitation when he says: "But it is sincerely to be hoped that the whole scheme of the secret committee as now developed will be vetoed by Government, not in the interests of the present case only but also as a valuable precedent to stamp on the intrigues of any future cabal that may seek, from any motive, to meddle with national property and to delude the custodians into falling in with their plans." Mr. Spielmann's interest in the Royal Academy as an official commission bureau thus appears to be much greater than his interest in Stevens's monument. His attitude will discount the value of any criticism he may have to offer when the model is exhibited.

Unfortunately, since the appearance of Mr. Spielmann's second letter Sir Edward Poynter has thought fit to join in the attack on Mr. Tweed. It is a deplorable position; it reveals the existence of a split in the Academic ranks; it places the President in the undignified position of attacking a younger artist of less position, and it reveals no new point of any importance. Referring to Mr. Tweed, Sir Edward, while regretting the impossibility of keeping his name out of the controversy, says of him, "He is not widely known to fame, but a test by which we may judge of his capacity to take up Alfred Stevens's unfinished masterpiece is the work which has been somewhat ostentatiously put forward—the statue of Mr. Rhodes."

"Lord Leighton stated, says the President, 'that the artist should be a man whose genius will carry him worthily through such a task, and whose reverence for the name of Stevens will ensure that close adherence to the leading lines and features of the first design which the public voice would demand.' Can it be affirmed that these requirements for the execution of a great work are, to say the least, conspicuous in Mr. Tweed's statue?"

The President then quotes a "Times" leader of April 12th, 1892, in which Stevens's work is described in words which everyone must recognise as most just and apposite: "The Wellington monument is by consent the finest piece of monumental sculpture ever produced by an Englishman. In dignity, in proportion, in refinement, it is unique among English works of this class. Dignity, proportion, refinement—again, I ask, can anyone say that these qualities are to be found in Mr. Tweed's statue of Cecil Rhodes? Whatever Mr. Tweed's gifts may be in other directions, in these, one would think, highly necessary qualities his work and that of Stevens are as the poles asunder."

Sir Edward refuses to believe that the exhibition of Mr. Tweed's model will prove a useful time for criticism. "We shall again, as when the commission was given, be presented with the *fait accompli*, and if criticism is unfavourable it will doubtless be with regret that the Committee will, in Mr. MacColl's engaging words, find that 'this very simple service to a monumental genius' has become 'mixed with questions of party.'" He does not yet despair, however of Government intervention upsetting the present arrangements.

In conclusion the President gives some explanation of his action, or rather want of action, in failing to acquaint the Dean and Chapter of his efforts to obtain a grant from the Government. "As things have turned out, this is certainly to be regretted, but without knowing whether the authorities would take the matter up it would have been premature to talk of it. To suggest, as I have heard has been suggested, that I kept the matter a secret is merely an attempt to throw dust in the eyes of the public on the part of those who had their own private scheme, and one which they would hardly have kept so secret if they had not feared that exposure to the light of day would have meant its doom." But Sir Edward can hardly expect his opponents to disclose their hand for his benefit. Secrecy was their chief weapon, and they made good use of it.

Building Collapse at Notting Hill.—A building in course of construction at 6, Silchester Terrace, Notting Hill, W., collapsed last week. Unfortunately two men were buried in the ruins. They were rescued by the firemen, who had been called up to the scene, and were removed to hospital.

PRACTICE.*

By R. M. BUTLER.

ONE of the first duties of an architect is to strive to administer his contract so that it may work out not only a substantial and creditable building, but that the contract may be carried out pleasantly and profitably to both parties to it. He should, so far as is consistent with his duties, aid in making the work reasonably profitable to the builder who has to earn his bread by such work. The architect must avoid being a partisan — above all should he disassociate himself from that class of employer to whom every builder is a rogue; he should if possible teach him better, or, if that be impossible, at least protect the builder. On the other hand, he must be prepared for the unscrupulous and dishonest builder and the builder who has a tendency to rush or curtail and cheapen work.

Then there is the tendency to accumulate extras from the day the first sod is dug. Builders who take work too cheaply are prone to encourage the young architect to make changes in his design, but if the practice is indulged in extras mount up and lead to friction in the end. Young architects must also be on their guard against becoming their employer's tool. He must be made to clearly understand that while every change does not necessarily mean an extra, it generally shapes that way. In a building of much artistic quality and detail changes are almost inevitable. The architect is not worth his salt who cannot improve upon his paper design, but in small or plain buildings there is less excuse for extras and alterations.

The two main causes of unpleasantness in building contracts are, first, extras and, secondly, cases where the builder is not made to clearly understand what it is he has contracted to do and finds later he has let himself in for more than he thought. This arises generally from his own stupidity or neglect, and sometimes from insufficiency and want of clearness in the quantities or in the plans and specification.

As to the first cause, we all know the insidious way in which extras arise. Frequently, in order to get a tender at a desired figure, the design is so cut down that extra items have to be inserted during progress, and this is scarcely calculated to please the employer.

One of the things which has most forcibly struck me is the unwillingness of many employers to frankly state the limit of cost they *will* go to. There are no bargains in building contracts. The full value must be paid if the work is to be sound. An architect is like a doctor; if the employer is to get the full benefit of the architect's services he must be perfectly frank with him; and it is the architect's business for his own protection, too, to keep him well up to this.

Having got so far, the architect's business is to keep the employer as free as possible of extras, of disputes, of law, and above all of so-called friendly arbitrations. My experience is that two actions at law are not so bad as one formal arbitration. Arbitrators seldom please either party: and if differences arise between the parties which cannot be settled by friendly give-and-take, or by the meditation or authority of the architect, let the issue be knit and tried by the best of all arbitrators—twelve jurymen, as I heard the late Judge Murphy say—or, what is even better, before an experienced, clear-headed and impartial judge There is infinitely more chance in this of a satisfactory and equitable issue; but avoid law if you can.

Clear instructions having been obtained, let the plans and specification be plain and lucid, admitting of no misconception, accurate and workmanlike. If you have, for instance, an irregular and hilly site, let it be carefully levelled and the depths of the foundations at every point shown on the drawings; this is ever so much better than settling it when the trenches are opened, as is sometimes the case.

In the specification avoid conventional "padding" as much as possible. Let the work, however, be fully described in every detail, giving dimensions wherever possible. The most common faults in specifications are omissions. See that nothing, however unimportant, is left out.

Next as to quantities. My experience is that for very small and plain works you are as well off without quantities, and will get lower prices, because small and inexperienced builders do not understand the phraseology, and put down excessive prices for items they do not understand. They estimate better and more accurately by their own rule-of-thumb methods. For works of any magnitude the contrary is the case, and, to my mind, quantities are absolutely essential, if for no other reason than the enormous help they are in adjusting extras and omissions.

I once knew a case of a small work tendered for by small men. The quantities described stone sills with raised seats. The builder evidently thought the seats were cut stone thrones for the employer to sit on, for he priced them at nearly ten times the fair price he had given for the sills. *Verb. sap.*

Write the specification yourself. No one else can describe the work so well. The surveyor may, and probably has, more experience and better descriptive language at command—but he is not the designer, and cannot know everything that is running in your mind.

Do not allow the surveyor, as the practice of some is, to indulge in "padding" and incorporating whole pages of the specification. It looks ridiculous, means nothing, and often increases the cost of the building.

Do not tell the surveyor that the building must be done for so much, and give him *carte blanche* to modify the plans or specification. If you need it, seek his advice beforehand and embody his suggestions in the plans. The advice of a clear-headed experienced surveyor is priceless. If you do not do this by reason of the drawings being already made, settle definitely with him what is to be omitted, or, if through pressure of work you have to leave much to his discretion, get him to prepare an accurate list of the deviations he makes or of anything he assumes, and see that the drawings and specification are made to correspond: and finally give the builders plenty of time to prepare their estimates.

A properly prepared bill of quantities should at once convey to an intelligent builder the nature and quantity of the work to be done, and it should not be necessary, save in exceptional cases or unusual work, for him to see the drawings or specification: if he does require to see them it is usually a sign that either he or the surveyor does not know his business

Builders tendering are entitled to much consideration. They go to great trouble and expend much time in a labour for which only one of them can hope to be recompensed. Be scrupulous in such little matters as only opening the sealed detailed bills of men whose tenders are actually under consideration. Some builders don't care a jot about this, but others do.

Having secured a builder, the great thing is to be clear and thoroughly understood in all your drawings, details and instructions and orders of every kind. Let the last be as far as possible in writing. Order no important extra without acquainting the employer, for you are handling his money and pledging his credit.

Be careful when ordering extra foundations that you know what you want done and are getting no more and no less.

Under no circumstances save fraud can an employer be held liable for errors or omission in quantities, but it is unpleasant to have them. Be sure the surveyor is capable, and that he has abundant information to work on.

As regards clerks of works, I believe their utility to be enormously overrated. A good clerk of works is a jewel above price, and correspondingly rare. In great buildings of some intricacy, or in very remote places, a clerk of works is essential for administrative purposes and for working out troublesome problems on the spot; but in such cases he becomes really a conducting architect or architect-in-charge. The average clerk of works on an average medium-sized building is, I think, a useless luxury, and his wages might much more profitably be spent upon the building itself.

I believe a downright dishonest builder is very rare—it is not to his interest in the long run; but against such a man the ordinary clerk of works is worse than useless, for his interference only incites foremen and puts them on their mettle to see how far they can fool him. I have seen many instances of this.

If you do have a clerk of works, insist upon his keeping very carefully and fully a diary, in which he enters everything of the least importance on the job, and, above all, insist on weekly reports—otherwise you are better off without a clerk of works. Do not allow him to get into the habit of ordering extras, however small. The employer is not liable for such orders, but it is unpleasant to have to repudiate them.

In my own experience I have met with one, and only one, man who was a really useful clerk of works and saved the architect much trouble.

I see by the address of the president of the Royal Institute of Architects of Ireland that the builders are pressing their case for a revision of the existing conditions of contract and that the two principal points are, first, the introduction of an independent architect in every building contract who shall be a sort of permanent arbitrator between builder and architect, and may be appealed to at any moment during the progress of the building to decide questions of materials, price, quantity and the interpretation of the plans and specification. I fail to see either the need or the equity of this, or how any architect would willingly submit to have his judgment daily and hourly questioned by a quarrelsome cantankerous builder. Even if the private architects yield to this, I think few corporations or public bodies will agree to this procedure. The other point is making the quantities part of the contract; with this also I disagree. That a builder should be compelled to do any work for which he is not to be paid, all because of the surveyor's error, is no doubt hard, but he takes the quantities at his own risk and it ought to be possible to devise some other safeguard, either by making surveyors guarantee their quantities or by some arrangement of independent checking. To say that an employer might at any moment during the progress of a building find his outlay compulsorily doubled would be an element about which there would be no finality, one which might lead to the employer's ruin, and would certainly tend to cripple and discourage building enterprise.

Both these proposals are, I think, clumsy and unworkable, and the builders have not proved the need for any such radical change in the whole principle of existing methods.

As to the architect's administration in general of the building. He should be possessed of sufficient legal knowledge to know how to act under all ordinary emergencies, such as the death, insanity or bankruptcy of the builder, the compulsory taking over of the work, dealing with refractory builders in regard to defective materials, and so on.

* Portions of a paper read before the Architectural Association of Ireland on December 16 h, 1902.

He should know how to act in all these cases, and should likewise know when to have recourse to expert legal advise—how and when to assert himself. But all his legal knowledge should be tempered with tact and discretion, for it is on these qualities and not upon legal knowledge that he must mainly rely to conduct a contract peacefully to its conclusion.

Bricks and Mortar.

Aphorism for the Week.

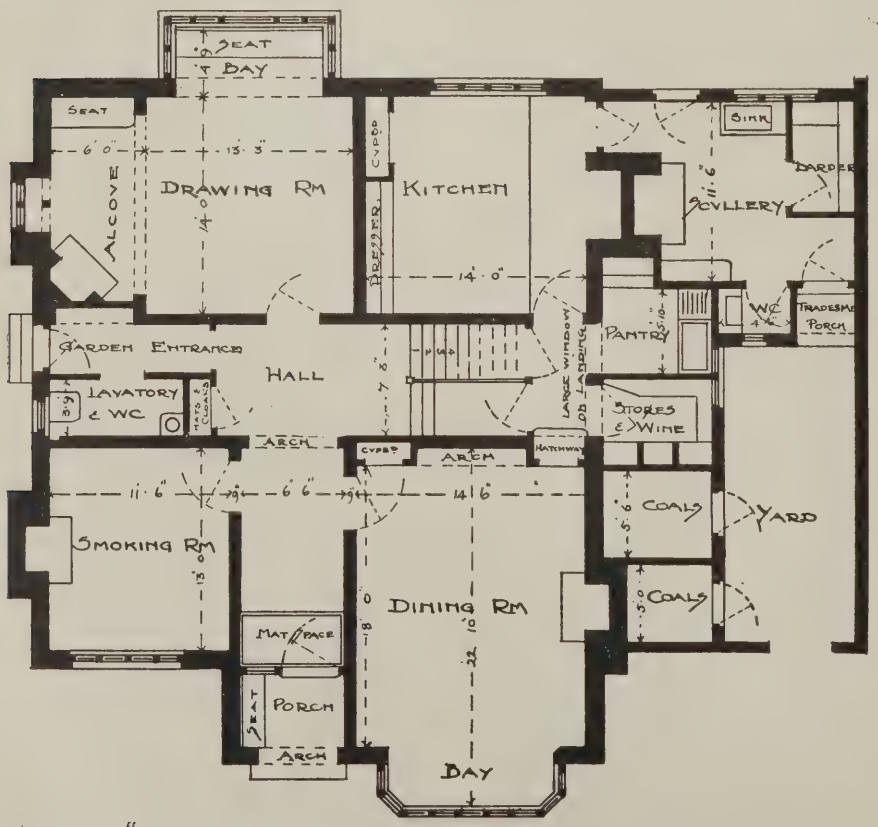
When one views from without these Gothic cathedrals, these immense structures, that are built so airily, so delicately, so daintily, as transparent as if carved, like Brabant laces made of marble, then only does one realize the might of that art which could achieve a mastery over stone, so that even this stubborn substance should appear spectrally etherealized, and be an exponent of Christian spiritualism.—HEINE.

Our Plates. THE houses in Swan Walk, Chelsea, by Balfour & Turner, architects, for Mr. W. A. Daw, are built of stock bricks with red-brick dressings and Portland stone cornice, &c. The roofs are covered with hand-made red tiles. The plan of the buildings has been largely governed by the irregularity of the site.—The Picture Gallery was designed for an open site 100ft. by 90ft., the main gallery floor being 7ft. above pavement-level at front—with access from vestibule by means of short flight of steps. A small gallery is planned around the central hall above the main gallery level for small exhibits, applied art, &c., with space over front vestibule for refreshment-room. The ladies' and gentlemen's lavatories are arranged in mezzanine over closets and office, beneath refreshment rooms. The design was submitted in the Royal Academy competitions.—"Langley" stands in a good position upon the Kingston Road, close to Putney Heath. It is constructed of red-brick facings, the upper part of the walls and the roof being tiled. The windows have wood frames and mullions with iron casements, and are glazed with lead lights. There are four bedrooms, dressing-room, bathroom, &c., on the first floor, whilst the second floor has large day and night nurseries, two bedrooms, box-room and housemaid's closet. The architect was Mr. Walter E. Hewitt, A.R.I.B.A., of 22, Buckingham Street, Strand, W.C., and the contractors were Messrs. George Candler & Sons, of Brixton.

Mosaics. MR. JAMES PATON in the Faculty Hall, Glasgow, delivered a lecture before the Incorporated Society of British Decorators on "Mosaics in History and Art." The lecturer pointed out that mosaic is the most powerful decorative medium which has ever come into the hands of the artist. The practive of mosaic working is of high antiquity which came into extended use at the most interesting stage of human progress, and therefore its history has intimate relation to a subject of the deepest import to mankind, the introduction and the early growth of the Christian religion. Mosaic working, being a costly and difficult art, required on the part of its successful practitioner very high artistic and technical skill, but when composed and properly fixed a mosaic picture was practically unchangeable and imperishable. The fundamental condition in the employment of a medium so potent, the lecturer pointed out, is that it be used with moderation, sobriety and reticence, the risk of a mosaic being that it may dazzle more than permanently delight. The historical development and vicissitude of mosaic art were subsequently dealt with, and recent efforts to revive the art, especially on a great scale in St. Paul's Cathedral under the guidance of Sir William Richmond, R.A., were alluded to.

All Hallows' Church. THE curious ignorance concerning architecture among even the wealthier and better-educated public is extraordinary. Witness the following excerpts from a letter to "The Times" headed "The Invisible Church," and dated from Hertford Street, Mayfair:—"I regret to see that an opposition is being got up to the proposed utilization, in the interest of the church, of the *useless fabric* of All Hallows' Church, Lombard Street. The structure of All Hallows', *whether within or without, has little to recommend it*, apart from the wealth of fine and interesting wood-carvings with which the interior is so richly adorned. The destruction or dispersion of these would be deeply deplored by all lovers of art, but why not keep them together for their original purpose in a suitable building? With the large sum to be realized by the sale of the site, &c., more than one church, probably, would have to be built elsewhere. Why should not one *of these be built in the style of Sir Christopher Wren*, and the magnificent reredos and pulpit, with the other fittings, be transferred bodily to a new All Hallows' in the suburbs? I quite admit that, as a rule, the Gothic style is that best suited to churches, alike for its intrinsic beauty and for its associations, but there are exceptions to every rule, and I think, in the circumstances, the course I have indicated may fairly claim to be one. If I venture to make the above suggestion, I claim to do so on the grounds of *a life-long interest in church architecture*, and also as having been closely-connected with the Bishop of London's Fund almost from its commencement, nearly forty years ago." Comment is needless.

Scarcity of Bricks in S. Africa. BUILDING in Cape Town is very much retarded owing to the shortage of brick. Bricks are among the most expensive articles there, being sold for £4 1s. 2d. to £5 1s. 2d. per 1,000, and being so poorly made that they have to be plastered with stucco to keep them from being destroyed by the action of the weather. It seems that if some good brick manufacturers would investigate this matter they would find a large margin for profit. Bricks in Capetown are usually 2½in. thick, 4½in. wide and 9in. long, although some are only 2in. by 4½in. by 9in. An American who uses a great many bricks in building ice plants in this and other cities in South Africa told Mr. Bigham he could sell 1,000,000 bricks per week if he had such hard vitrified bricks as are made in the United States, for these would not have to be plastered.



"LANGLEY," KINGSTON ROAD, PUTNEY HEATH: GROUND PLAN.

Masters and Men.

The Barrow Joiners have received intimation that their wages will be reduced a farthing an hour. This decision is consequent on the result of the conference of Clyde shipbuilders, the Barrow rate of wages, so far as joiners are concerned, being ruled by the Clyde.

Cardiff Painters' Grievances.—A meeting of the Cardiff District Trade Management Committee of the Amalgamated Society of House Decorators and Painters was held at the Oxford Hotel, The Hayes. The men have for some time been agitating for increased wages and better conditions of labour, and their demands were considered at length and in private. At the close Mr. John Lane (secretary) denied that their week's work consisted of fifty-six hours, the proper number of hours being fifty-four, and it was also not a fact that from March to September they earned £2 a week. The men asked that their wages should be increased from 8d. an hour to 9d., to put them on the same footing as workers in other branches of the building trade. They were also, he said, unfairly dealt with in that they alone did not have the percentage of overtime between 5 p.m. and 7 p.m. at the rate of two and a half hours. The master-painters had up to February 1st in which to reply.

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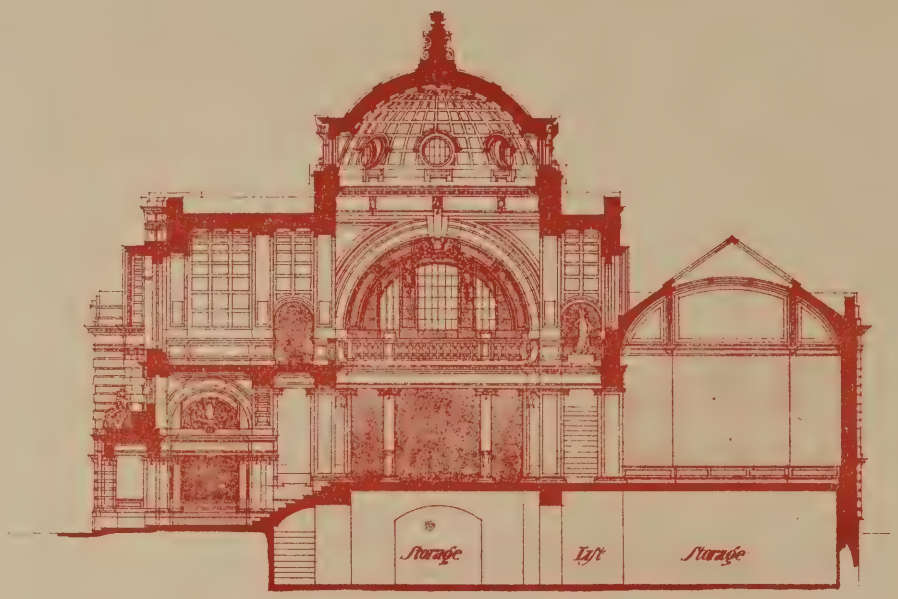
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HOUSES AT CHELSEA, LONDON, S.W. BALFOUR AND TURNER. ARCHITECTS.

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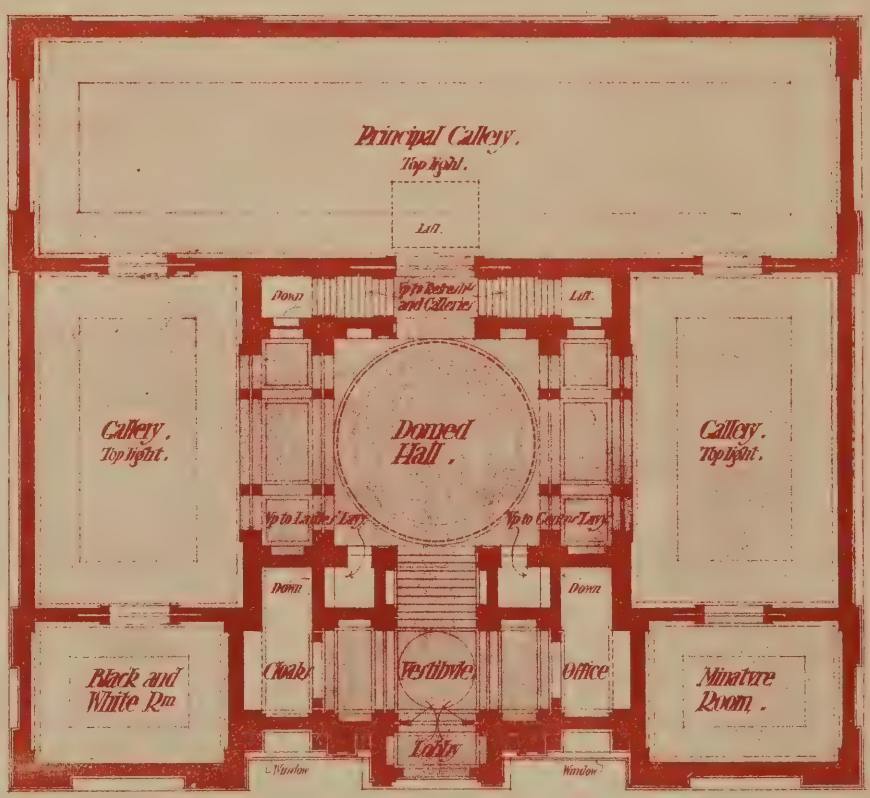
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Lavatories with top and side lights arranged over Office and Cloak Room.

SECTION.

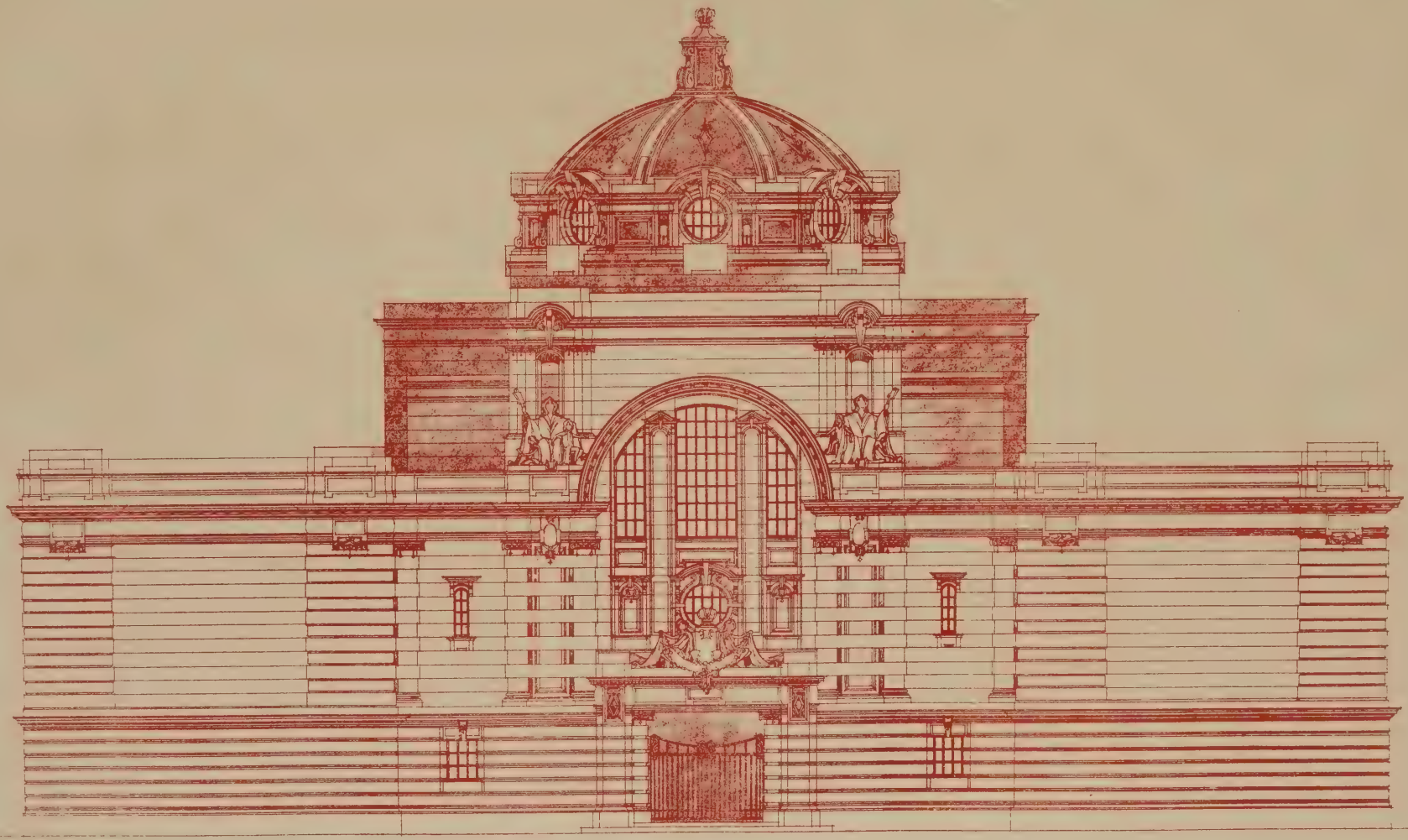
Refreshments and small Galleries arranged on upper level around Hall.



PLAN OF GALLERY.

Scale 10 5 0 10 20 30 40 Feet.

A PICTURE GALLERY FOR A COUNTRY TOWN. F. WINTON NEWMAN, ARCHITECT.



FRONT ELEVATION.

Scale 10 5 0 10 20 30 Feet.

"INK-PHOTO." R. J. EVERETT & SONS, 58 LUDGATE HILL, E.C.

A PICTURE GALLERY FOR A COUNTRY TOWN. F. WINTON NEWMAN, ARCHITECT.

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"LANGLEY," WEST HILL, PUTNEY HEATH, LONDON, S.W.
WALTER E. HEWITT, A.R.I.B.A., ARCHITECT.

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R.I.B.A.

A MEETING of the Royal Institute of British Architects was held last Monday evening, Mr. Aston Webb, A.R.A., presiding. It was announced that the Royal Gold Medal was proposed to be presented this year to Mr. Charles F. McKim, of McKim, Mead and White, of New York. Mr. Aston Webb then delivered his address to students, the following being a summary:—

Some young men seem to expect to attain success as soon as, or even before, they are out of their articles; the majority are necessarily doomed to disappointment. Work, you will find, is necessary, and that work must be lifelong; there is no success or happiness without it. When a young genius was brought to Ruskin, his first question always was, "Does he work?" A clever man, he says, may be indolent, but a great man never. It is probably the ten years succeeding pupilage that are the most important in the life of most architects, and will be the all-important ones in yours. How will you use them? Then you will begin to rely upon yourself and teach yourself, and cease to rely upon others, a very important difference. Start with high ideals, for they will be sorely tried. A famous painter told a gathering of students a short time ago that he never painted a picture that realised the ideals he had started with; and if this is true of a distinguished painter, how much more true of lesser men!

Many years ago I read a paper on "Pupilage" before the Architectural Association, and after the paper a gentleman got up and was kind enough to say I had given them many useful hints as to how to *do* their work, would I now give them a few tips as to how to *get* it; but that was not part of my subject then, nor is it now. I will only say this, that if you take care to prepare yourselves and do the work that lies nearest to you as well and as thoroughly as you can, the work will come to you and you will not even have to trouble how to *get* it: the way you *do* what does come to you is the all-important thing. Remember Carlyle's description of common journey work well done for want of better.

We will assume you have got knowledge. But with all your getting you must get understanding—get to the bottom of things and understand them. A well-stored memory is not the chief essential for an artist, though it is of great value to him. Cultivate curiosity and observation, and leave nothing unexplained. Now is your time. Some grow old without gaining any experience, through never having learnt to observe. Learn now how to learn, or you will never do it, and lead the "strenuous life." Don't be afraid of overwork; the number of people who overwork themselves is infinitesimal; the chances that you will be one of them are hardly worth taking into account.

I would recommend you, for one thing, to know as many artists of about your own age as possible, architects, painters, and sculptors; meet together as often as you can, talk what is called shop with them, visit buildings, paintings, and sculpture, old and new, together, criticise these things together, admire where you can and give your reasons, and when you must condemn give your reasons also; get all you can from your friends, and give them all you can in return.

You will read, of course, "a lot." Start with a high ideal and map out a certain time every day for the purpose. Then, of course, you will sketch existing buildings, new as well as old, and try to get at the principles of their design and construction. In my day we used to sketch and measure an arcade, a doorway, a font, or other detail easily accessible, draw it out prettily, and publish it in the "Architectural Association Sketch-Book," and, I am afraid, remain oblivious of the points in the plan, elevation and section of the building which produced the result we admired but did not understand. You will, I do not doubt, make a rough note of the plan, elevation and section of the building you are studying, and put on the leading dimensions, noting the thickness of the walls, the amount of lighting area, &c., and any distinguishing features this analysis brings out.

Thus you will learn the real vertebra of the building, although you will probably have no notes fit for publication; but you will know your building in its three dimensions; and you will be surprised, if you continue this plan, how it will give you a grasp of the general conception of buildings, which is what an architect should endeavour to arrive at. The detail is important—vitally important—but the conception is the principal thing; and as you come to design buildings yourself you will think of them in the same way as cubes, not as planes, and, having learnt what feet look like in existing buildings, you will at what understand what they will look like in your own buildings when they come to be realised from paper structures to real brick and stone. The great buildings of the world are admired because their dimensions are noble and proportionate the one to the other. You will, therefore, never rest till you have obtained this rhythmical music of dimension. Then you will not think construction beneath your notice. It is at the root of all great architecture. Wren was a great constructor, the founder of the Royal Society, an inventor of scientific instruments, and a scientific man. Go into St. Paul's and stand under the dome and think; go up into the spire of Salisbury Cathedral and think a little, and realise how greatly daring were the men who designed and erected these structures so that they have withstood the thrusts, the storms and natural decay of centuries, and remain the admiration of mankind. Then you will also study materials—those that look well in work from colour and texture, and that weather well and improve by time. It is impossible, again, to exaggerate the importance of this towards a satisfactory building.

You will also (if you are wise) keep a commonplace book and jot down dimensions of things as they come under your notice, because it will save you much time and trouble later, when your hands are full and your time can be better employed than in hunting these matters up.

And with regard to the drawings you send out to the works, you will remember that *what* you show is far more important than *how* you show it; and so you will make your drawings as practical as possible, and write all instructions on them the workmen are likely to require; and you will be comparatively unconcerned as to how your building looks on paper, provided you can see in your mind's eye it will look well in reality. An architect's work is his building, let him produce it how he may. The beautiful drawings of the late J. F. Bentley, shown here a short time ago, had never been seen before, his one desire being—so Mr. Ingress Bell, who knew him well, tells me—that he should be known by his work and nothing else.

I have not, even now, enumerated half the branches of study in which you will have to instruct yourself, but, lest you should feel it an impossible task, I may say that you will find, as you master first one and then another; these subjects will dovetail one into another, so that you will gradually, perhaps almost unawares, become a well-informed man. Then you will travel, of course, when the opportunity occurs. And then, in addition to all this, you will practise scrupulous integrity towards your employer, employed and professional brethren, and you will never do anything you would prefer your client not to know about (for that is a safe rule when you are in doubt). You will, I am sure, endeavour to be courteous, upright and modest in all your work, not always seeking your own advantage and so you will raise yourself and your calling and become what we call an English gentleman.

It is easier, I know—no one better—to say all this than to do it. Nothing worth doing was ever yet easily done; lifelong work is required, and I end, as I began: you will do no good thing without it, and get no enjoyment either without it. The possibilities of life are nearly endless, and they depend mainly on yourselves. Remember that the pursuit of architecture is a serious pursuit. Ruskin tells us "it is sympathy and imagination that make the artist." Cultivate, therefore, both, and you may leave behind you something that has been worth the doing. And doing is the principal thing—don't think over much, but try.

Mr. Walter Millard, A.R.I.B.A., in reviewing the designs and drawings submitted for the Prizes and Studentships, 1903, said:—I cannot help wondering a little with what feelings would some of the pious founders of our prizes and studentships have viewed the exhibition, and in what way would they have given expression to their feelings? Apart from questions of architectural style, would they have been content to observe a large proportion of the designers starting, with some preconceived idea and a stock of architectural trimmings to dispose of, to evolve designs, apparently without intelligently grasping anything like the full significance of the problem to be solved, as set forth by the conditions; going the wrong way to their work from the first, and often gratuitously creating difficulties for themselves, perhaps for the purpose of getting over them—but then failing to do this? Or would the founders have been any better pleased in looking at certain of the representations of old work, wherein some facts are distorted and others left doubtful, when they might be clearly told; evidence not only of slipshod ways of drawing old work, but, furthermore, of a superficial way of regarding it? What is an architect or a student of architecture if he be not really workmanlike in his methods of work and study? For the root of the evil I fear we must go further back than the individual students themselves. To a quite considerable extent these are yet untaught and untrained in right methods of study; how to learn they have never been taught.

In other callings the cry goes up for efficiency; is this any less needed in ours? But an architect of whom it could only be said that he was efficient would not thereby necessarily be entitled, in the fullest and highest sense, to recognition as an architect. For this he must add to his indispensable practical qualifications something that we try to describe by some such term as artistic ability, but for which term I would prefer to substitute another, namely, the appellation of that rather indefinable quality which, in parallel branches of human knowledge and human endeavour, is generally understood by the word Scholarship; a quality based on sound knowledge, yet compounded also with something more than mere knowledge; the crowning result of a process of training rightly applied to draw out and turn to best advantage those finer instincts with which the student may have been endowed by nature. If I might presume to suggest for the architectural student two watchwords, these would be *Scholarship* and *Efficiency*. Without the one he can be no true architect, without the other he will be a sorry architect indeed!

Mr. J. J. Solomon, A.R.A., proposed the vote of thanks to the President for his address. Mr. John Belcher, A.R.A., seconded.

Keystones.

Change of Address.—Mr. Charles H. Mead, architect, has removed from 8, Mortimer Street, W., to 64, Berners Street, Oxford Street, W.

An Isolation Hospital to accommodate twelve patients has just been erected at Spennymoor at a cost of £5,000. The plans were prepared by Mr. G. W. Rogers, A.M.I.C.E.

At Bethnal Green Workhouse new dormitories and maternity wards are to be erected from the designs of Mr. W. A. Finch, of 76, Finsbury Pavement, E.C. Mr. Finch is also the architect of the new casual ward, &c., at Hackney workhouse.

Cape University Buildings Competition.—The Agent-General for the Cape of Good Hope has been instructed to inform competitors regarding the new Cape University buildings that the time for sending in their plans, &c., has been extended to the last day of February.

New Church for Carluke.—The new Baptist church at Carluke was opened last week. The church accommodates 250 persons, and there is a small hall and three retiring-rooms at the rear. The total cost is over £800. The architect was Mr. Andrew J. Riddell, Motherwell and Carluke.

Radley War Memorial.—The Old Radleian War Memorial Committee was held recently, when they decided to ask Mr. T. G. Jackson, R.A., to submit for their consideration a scheme for a memorial at the east end of the college chapel, in addition to the plans for a canopy over the stalls which had been put before them.

Competition for Public Free Library and Technical School at Chadderton.—The following is the result of this recently-held competition:—First, Messrs. Arthur Groome, A.R.I.B.A., & J. Lindsay Grant, joint architects, Manchester; second, Messrs. Woodhouse & Willoughby, Manchester; third, Mr. Richard Holt, Liverpool. The assessor was Mr. A. N. Bromley, F.R.I.B.A., Nottingham.

The Incorporated British Institute of Certified Carpenters has issued its twelfth annual report for session 1902. Eight new members have been enrolled and eight general meetings, four council meetings and two special meetings have been held. The necessary papers have been taken out for the incorporation of the institute. During the session the members visited the works of Messrs. Reynolds & Co., engineers, Blackfriars; the Prudential Buildings, Holborn; Newgate Prison; the Roman Catholic Cathedral, Westminster; and the University Hospital, Gower Street, W.C.

Architectural Association of Ireland.—The third technical demonstration of this Society was held on Thursday, January 29th, at the premises of Messrs. T. & C. Martin, 82, North Wall, Dublin. There was a large attendance of members, who were taken round the extensive works by Mr. John Martin. The principal species of timber used for building purposes were shown in the log, and afterwards in process of conversion, the peculiarities and defects in each being pointed out. Special sections showing sap, shakes and rot were exhibited. After a brief inspection of the workshops a collection of cubes of soft and hard woods in general use was shown. The specimens had been specially prepared, one side left rough, one sawn, one planed and the fourth polished or stained and varnished—one end rough, the other planed. In acknowledgment of the hearty vote of thanks for the demonstration Mr. Martin signified his intention of handing over these useful samples for the proposed technical museum.

The new Church of St. Michael, Edmonton, which has been erected at a cost of nearly £12,000, was consecrated last week.

Wesleyan Chapel for Darlington.—The foundation stones of a new Wesleyan Chapel to be erected in Corporation Road, Darlington, were laid recently. The building, which will replace one at present used as a school-chapel, is estimated to cost £7,000, and has been designed by Messrs. W. J. Morley & Son, architects, Bradford. The building will have a tower and spire rising to height of nearly 100ft. There will be accommodation for 800 persons.

Tragic Death of an Architect.—Mr. James Hardy Southern, an architect, aged about fifty years, residing at 24 Bar Street Without, Beverley, was found dead recently in his office in Chapel Lane, Hull, with a five-chambered revolver lying beside him. One of the chambers had been discharged, and deceased had been shot through the head. Among the articles found upon the deceased were a will and an open letter addressed to his wife.

Alterations at Somerset House.—The old Exchequer and Audit offices, which were formerly located at Somerset House, having been removed to new premises on the Thames Embankment, near Blackfriars Bridge, the offices thus vacated are being structurally altered and renovated in order that additional accommodation may be provided for the Inland Revenue department, the business of which has considerably increased of late years.

Memorial Windows.—The Parish Church of St. Peter and St. Paul, Wadhurst, Sussex, has been enriched by a new stained-glass window, one of a series which the rector and churchwardens hope to place in the clearstory. The subject is St. Gregory, the Bishop of Rome who sent St. Augustine to England. A memorial window has also been placed in the chapel of the Philanthropic Society's Farm School, Redhill, in remembrance of old boys who died in South Africa during the war.

All Hallows, Lombard Street. — The Council of the Society of Architects having been asked by the City Churches Preservation Society to express an opinion on the proposed demolition of All Hallows, Lombard Street, has intimated its opinion that, it being understood that by the sale of the site a large sum of money will be available for the provision of churches and clergy in the poorer parts of the metropolis, the sale of the site is justifiable under these circumstances, more particularly as there should be no difficulty in removing the building and re-erecting it upon some other site, thus preserving the building and its fittings for more extended use and service.

Leeds and Yorkshire Architectural Society.—The third craft evening in connection with this Society was held on Thursday, January 29th, the president (Mr. Butler Wilson, F.R.I.B.A.) in the chair. The demonstrator for the evening was Mr. Walter Gilbert, of the Bromsgrove Guild, who discoursed upon "Decorative Metal Work," and exhibited and explained the process connected with various examples of the art produced by his band of fellow workers. Previous to this he delivered a short but interesting paper, in which he traced the history of the ancient guilds from their inception, and dwelt upon the fact that in the days gone by everything manufactured seemed unavoidably touched by the finger of art. He contended that the misleading phrase "Gothic work" should give place to some such term as "guild work." The craftsman in former times made his work as amusing to himself as he could, and lavished treasures of human hope and thought on everything that a man made, from a cathedral to a porridge pot.

New Church, Portsmouth. — The new church of St. Stephen's, Portsmouth, has just been consecrated.

Liverpool Infirmary for Children.—A new building which is to form the out-patient department of the Liverpool Infirmary for Children was formally opened last week. The building occupies a site in Mulberry Street, and was designed by Messrs. Haigh & Thompson, of Liverpool. Arrangements have also been made for the erection of a new Infirmary for Children on the site of the present institution. The architects in this case also are Messrs. Haigh & Thompson, who have designed the buildings on what is known as the "pavilion" plan, with an administrative block and nurses' home,

New Public Washhouses in Stockbridge, Edinburgh, have been opened. The building is lined inside with white-glazed bricks, and in the washing-room there are forty tubs, each with a steam apparatus for boiling the clothes. The arrangements have been carried through by Mr. Morham, city superintendent, and Mr. Williamson, his deputy. The principal contractors for the builder's work were Messrs. James Kinnear, Sons & Co. Messrs. Mackenzie Brothers were responsible for the engineer's work, and the whole was carried out several months within the period provided for in the contract. The cost, exclusive of the value of the site, is approximately £4,500.

The Reparation of Venice.—The Municipality of Venice has voted an appropriation of 350,000 lire to assist the Government in the restoration of the monuments of Venice. The Government has already set aside an appropriation of 500,000 lire by decree for the reconstruction of the Campanile of St. Mark, and the Municipality has decided to spend a million lire in repairing the monuments of the city. The mayor has announced that the damage done can certainly be repaired, and the work is already well advanced. He added that the alarmist reports about the general insecurity of the city are without foundation. The fifth International Exhibition of Art will be held in the spring.

The Royal Exhibition of Athens is to be opened on April 7th next, and will remain open for six months. It will be held in the Palace "Zappeion" and in pavilions specially erected in the grounds surrounding the exhibition. All descriptions of manufactured articles will be admitted to the exhibition. Exhibits will only be received up to March 14th, except in exceptional circumstances. All exhibits are free of customs and town dues, provided they are duly labelled with the official labels supplied by the exhibition authorities. All communications respecting the exhibition should be addressed to the sole agents, Messrs. Charles Atkins & Nisbet, 1, Water Lane, Great Tower Street, E.C.; or to the Greek Consuls throughout the United Kingdom.

New Church, Goodmayes.—The foundation stone of the church of St. Paul's, Goodmayes, was laid recently by Lady Florence Cecil. The Bishop of Colchester officiated, and delivered a brief address. The architects are Messrs. Chancellor & Son. It is proposed to build the church in sections, as funds permit, and it is expected that the first one will be ready for use by next Whitsuntide. Including the site, which is a prominent one near the London and Romford Road, the total expenditure for the first portion will be £1,600, of which £200 has yet to be raised. Goodmayes is the latest development of the Ilford "Corbett estate," and has a population already of 4,000. The church when completed will cost £7,000 and will accommodate 650 worshippers.

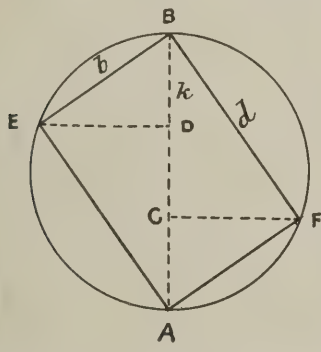
BUILDING CONSTRUCTION.—VII.

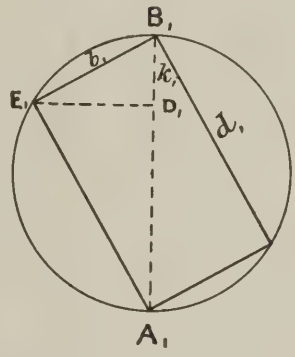
By Our Special Contributor.

(*Continued from p. 364, No. 414.*)

THERE is a carpentry question which perhaps deserves to be noticed. It may not be of much practical value, but it comes up repeatedly as a question in examinations, and it is a good example of easy maxima.

(*a*) To cut the strongest beam of rectangular cross-section from a circular cross-section cylindrical piece; and (*b*) to cut the stiffest beam of rectangular cross-section from a log or piece of circular cross-section. It is shown in a previous article that the strength of a beam of rectangular cross-section is proportional to the breadth and to the square of the depth, and that the stiffness is proportional to the breadth and to the *cube* of the depth. Let R be the radius of the log, $4R^2 = b^2 + d^2$, $d^2 = 4R^2 - b^2$ $\therefore$ $bd^3 = 4R^2b - b^3$ $\frac{d(4R^2b - b^3)}{db} = 4R^2 - 3b^2$: and bd^3 is a maximum when $b = \frac{2}{\sqrt{3}}R$: by similar triangles, $\frac{Kb}{b} = \frac{b}{2R}$ from which $K = \frac{2R}{3}$. The rule is, therefore: Divide the diameter into three equal parts, and draw the perpendiculars D E, C F to find





the points E and F. The stiffest beam is such that bd^3 is a maximum: in the same way as K was found to be $\frac{AB}{3}$ for the strongest beam it is found that K′ for the stiffest beam, is $= \frac{A'B'}{4}$.

I have now come to the question of joinery. I have already said that the floors were laid in 1⅛in. white Baltic flooring: these articles would be extended much beyond the limits set for them if the various kinds of prepared flooring now to be had in the market, and other like things, were described. Red and white Baltic prepared flooring are the common kinds to be had in the locality. It is not intended to deal with hardwood flooring in connection with this house in which no hardwood flooring was laid. I may be permitted to say that I have used American maple flooring in places subjected to heavy and rough traffic, and found it very satisfactory; the joints keep close, and the surface has withstood the rough traffic of the common hall of a courthouse building very successfully.

The student who has never tried his hand at carpentry or joinery is not one likely to ever become a satisfactory superintendent of any kind of building construction. It is recommended that he shall try every kind of work, both to enable him to put himself in the workman's point of view and to really come to have some practical knowledge of the materials used in building. For many of the trades, on account of want of opportunity, this trying of one's hand is the result of deliberate effort; but working in wood, the use of saws, knives, chisels, planes, nails and screws, &c., &c., is the natural manifestation of the constructive instincts of most of us. There is, therefore, no good in setting rules for beginners, because everyone worth talking to has begun. He has made birdcages, he has made boats, he has carved galloping horses and constant top sawyers. If he has access to a lathe he has turned spinning-tops and made many wonderful things—draughtsmen, chess-men, &c., &c. This is all very well; no harm has been done. He may be unable to sharpen and set a hand-saw; to crosscut without twist a piece of quartering; or to rip down a 1in. thick board, so that the saw cut will be true on both sides of the board, he cannot "grind" a plane-iron, nor set it—either with the oil-stone or in the stock of the plane. His productions may have a whittled look, but if he has got so far inside the limits of his school days he has done well. He should now take himself in hand and learn to keep his tools in good order and use them properly. There are some amateurs who spend too much time over their tools—both the time spent in polishing and arranging them and the number of special tools are altogether out of proportion to the work done by means of them; and there is the untidy "handy" man, who has very little reverence for tools, using them indiscriminately for all kinds of things. The student should avoid either extreme. In an emergency he ought to be able to accommodate the tool to the work, but he should understand the advantages and limitations of specializing. A common rule is good enough with which to measure the length and breadth of a door, but one needs a special gauge to measure the diameter of a wire. If the student is in the condition of having his tools kept in good order for him by someone else, he may never discover how far he falls short of efficiency; he may be a botch without knowing it. I recommend the student to keep his own bench and tools in good order. Let him practice with a hand-saw till he can both crosscut a piece of quartering fairly true and till he can rip down a 1in. board true to line on both sides (there is one hint that may be useful in this exercise: do not grasp the handle of the saw too tightly and hold it too stiffly; when you have entered on the cut truly, let the cut guide the saw). The village cartmaker—carpenter and joiner, &c.—as a young man migrates to the towns and seeks employment as a joiner. He sometimes succeeds, but with difficulty. I remember being told by a foreman joiner (in the old days when trades unions were not so well organised as they are now) of a man who came to him to solicit "a job." The man could say that he had worked as a joiner, but, said my friend, "the fellow put down his basket and I saw a *claw hammer* in it; of course I had no work for him."

The trade of carpenter is much modified by the increasing use of iron both in roofs and floors. The trade of joiner is being revolutionized at the present time. The increasing use of labour-saving machinery, combined with a considerable rise of standard of goodness for average work and with the increased facilities of communication, has resulted in the setting up of joinery manufactories; there are quantities of doors and frames made to stock sizes imported from foreign countries, and we have mouldings and scantlings (the flooring already quoted) in great variety imported. These are not what I now particularly refer to. Builders send copies of the drawings and measurements for the joinery of a house to manufacturers; they get quotations; they select the cheapest, and the work is sent down by rail (or otherwise) ready to be put in place. The most difficult and most specialized piece of work about a house is the stairs. Special stairbuilders are sent (in the case of work of my own) for over 100 miles. The books do not appear to notice this important change (the small joiners' shops are disappearing). It is very important for the student to mark changes of this kind. Those of us who have been in the world of work for fifty years have seen much change, yet there are books published recently which read to any practical man like the reminiscences of Rip Van Winkle. They are all the same; they copy, without change, parrot-like, the exact language of their predecessors for many generations. I quote a book which within its own limits is the best book published, and I make this declaration to do away with any suspicion that I quote the book to specially discredit it: "Timber is sawn to the required dimensions in a saw-pit by two men working a large two-handled saw, called a pit-saw. The line which has to be followed is chalked accurately on the upper surface of the wood which is placed over the pit, and two men, one in the pit, called the pit-man, and the other above, called the top-man, work the saw vertically up and down." . . . "When much sawing has to be done a circular saw worked by machinery is used, the saw itself being stationary and the stuff to be sawn fixed on a movable bench, which, being self-feeding, keeps the wood continually working up against the teeth of the saw." This is the kind of information which, under the name of theory, the practical man is supposed to respect. Let the student visit a joinery works if he can, and he will find both there and at any common sawmill which he should also visit and inspect, that there are saws worked by machinery which are not stationary circular saws, and he will see many examples of woodworking machinery which appear to be unknown to the writers of the most recent books on joinery. And here again I have to guard against being misunderstood. I have before me a very excellent recent book on joinery written by a practical man (and well worth reading), who appears to rise no higher in woodworking machinery than a hand mortising-machine. It is of use to study the hand methods, both because much of the very finest work must still be done this way, and because after a study of this kind the action of the machines will be more easily understood.

The joinery of this particular house was in respect, part of it, "manufactured," and the manufactured part was the best part of it. I have succeeded in getting good joinery in pitch-pine, but it requires careful management. Framing should be kept some time unwedged; it should be piled so as to allow a free circulation of dry air, and it should at the same time be prevented from twisting (piled, laid horizontally, separated by narrow slips, and the top pieces weighted or otherwise held down); when it is wedged and cleaned off there should be no delay in varnishing it (no glue size should be used; I shall deal with the varnishing later). To prevent shrinking it is necessary to have the juices still remaining (mainly resinous juices)

sealed up in the timber, and this is done by good heavy, proper varnishing. I shall be told, "Oh, but I do not want the place to be glittering with varnish; I want the wood dull," Even so, you must, to have a good job in pitch-pine, cover it with a good thick skin of good copal varnish, repeatedly coated, giving time between the coats. You may, if you want the work to be reasonably dull, take the bright gloss off with a final rub with fine ground pumice, and the work then washed and chamoised. I shall be told that you do not want all the joinery of the house to be in glaring pitch-pine. I am prepared for this. You may paint it of whatever colour you please and you may wear it for a year or two varnished before painting it. One of the most valuable results from the present fashion of varnished pitch-pine is probably that we may learn in the extended use of it the proper way to varnish joinery. The house painter sometimes feels that he has relations on the one hand to the coach painter and on the other hand to the French polisher. He should draw a firm line of distinction between himself and the French polisher; his work should be more permanent than work done in spirit varnish. Copal varnish is the mainstay of the coach painter; it is suitable for the finest work of the house painter. "Stains" should be avoided; the wood should in all cases be varnished in its natural colour, modified by the varnish only. The work should get time between the coats to harden, and it should be carefully rubbed with finely-ground pumice to prepare it for each coat of varnish. The varnish should be good—not the cheap trashy "oak" varnish which is almost universally used—and it should be laid on in the abundant whole-hearted manner practized by good coach painters. Any timber suitable for joinery may be varnished with satisfactory results, and if it were more frequently done the mode would do something to relieve the present painful monotony of varnished pitch-pine, which is almost invariably badly varnished with bad varnish on a foundation of glue size.

The windows are almost all fitted with sliding sashes, balanced with weights which are concealed inside the casing. Such windows are undoubtedly the most generally suitable for our climate. The window over the porch was, however, altered to a "French" window, and a railing parapet was added to the top of the porch. The bathroom window is also a casement window. (By a casement window I do not understand a pivoted sash.) It will be observed that the ground-floor sashes have the bottom sash larger than the top sash. The view from every window of this house is beautiful—mountain, lake and sea; the meeting rails of the ground-floor sashes are 6ft. 6in. over the floor, so that they do not seriously interfere with the outlook of any person standing upright on the floor. There is the question of shutters to windows: of what use are inside shutters? A house in the position of this one is subject to storms of such violence as the dweller in towns has no experience of, and on wild nights the closed shutters make the rooms snug. The snuggest shutters are sliding shutters, hung with balance weights like the sashes; when not in use they are pushed down behind the window back. If a bay window is to have shutters, these sliding shutters are the proper kind. As a measure of economy the upper windows were at first designed to be without shutters, but conservative instincts prevailed, and these windows have been fitted with the ordinary shutters, which fold into the jamb. I fancy that bedroom shutters are rarely used; it is usually found to be sufficient to draw one's blinds, and the number of persons who sleep at night with their bedroom window more or less open is increasing. The snugness desirable in a sitting-room is not so necessary in a bedroom: when the door is kept closed a slight opening at one window causes but little draught; in a sitting-room the doors are continually being opened, occasioning draughts if the windows are not tight and snug. I am of opinion that bedroom windows might very well in some localities do without shutters. Shutters do not protect from the housebreaker; they are rather an advantage to him by making the sound of breaking glass less liable to be heard by inmates; and accidental and malicious injury to the glass is most frequently from the outside, against which the shutters are not a protection. It should be remembered, however, that closed shutters, even where they are not close-fitting, add very much to the warmth of a room, because they interrupt the free convection of air against the cold glass of the bare window. They have some of the value of double windows, which are found to be necessary in some climates. Questions of this kind are for the owner. Owners generally have opinions on these matters, but an architect is expected to put the arguments for and against clearly and fairly. A friend who has built a number of houses of a good class, for letting to tenants tells me that if, having regard to economy, it is a question of sheet glass and shutters or plate-glass without shutters, he prefers the latter.

There appears to be very little variety in the pattern of mouldings round panels in framing doors, &c. Where it is intended that a timber of strong lines like pitch-pine shall permanently show its grain, the lines of elaborate mouldings do not show, being masked by those of the timber. I do a good deal of pitch-pine framed work, as bead and flush, the jambs, soffits and window backs of unshuttered windows, and the framed jambs and soffits to doors, &c. Where windows are shuttered the panels of the shutters, backs, elbows and soffits are moulded to match those of the doors (the mouldings having a reduced cross-section). The mouldings showing in the rooms of the first floor are all of the same pattern; those of the three reception-rooms on the ground floor are of one pattern; the doors showing in the halls and landings are of one pattern: there are thus three patterns of mouldings. In the matter of mouldings we are pretty well limited to stock patterns; any originality which we may attempt involves new planes and plane irons. If we have agreeable proportions between framing and panels, fine-lined mouldings are of little account in pitch-pine work. I am fond of using for the panels showing in the halls and landings a simple round (large bead) and for architraves I use a flat with a round placed upon it centrally. Owing to the care necessary in working pitch-pine to have it safe from little hollows and irregularities at knots, &c., where small portions are apt to be dragged away (not cut) by the plane, it is advisable to have the surfaces flat and simple. These little hollows cannot be made up satisfactorily with any kind of filling; it is almost impossible to totally avoid them. Where the timber does not show strong lines of "grain" the lines of mouldings are important, and still more so where the work is to be painted of a uniform tint. Yellow pine is a beautiful timber for joinery; it is easily worked, and it can be relied upon as giving very little trouble after it has been seasoned and painted (or varnished) either from "swelling," shrinking or twisting; this timber is familiar to every student as that from which his drawing-board is made. The timber of the northern pine may be taken to be the standard timber for carpentry; it is also excellent for joinery. I have to reiterate that if good work is done in any of these timbers, and it is proposed to varnish it, use no *stain* of any kind. The common spruce timber may also be mentioned; it is cheap, and it is much used for carpentry and sometimes for joinery in cheaply-constructed houses. It is not intended to give here a catalogue of different timbers; the varieties and sources are numerous, and a catalogue without reference to samples is of little value. The student is advised to make a collection of samples of timber, commencing with the commonest kinds. In ordinary practice one has to do with only a few kinds of timber. It is an error of education to burden one's memory with facts on the chance that they may have to do with rare problematical work in a possible practical future; it is quite sufficient if one knows how to get the facts as they are required. It is the business of a student to avoid overburdening his memory, which is almost the same thing as making the best of what is called a bad memory. There are subjects to which we naturally take; in respect of these no great care is needed—we remember the facts of them without effort. But bearing in mind that there are some things which we *must* remember with effort, such things should be only absolutely necessary things. The student should practice economy of brain-effort, but this is not an advice to him to be idle. I heard a little girl "getting off" tables of weights and measures some time ago, and there are a certain number of "loads" in one "last"; I forget how many—so does she. I look up the Imperial Dictionary, where I find a long and intricate definition of a "last." It is a waste: it is worse—it is an outrage to burden the memory of young people with facts like this.

The outside porch door is in two leaves, framing 2½in. thick: top and middle panels bevelled bolection moulded; panels made from stuff 1½in. thick; bottom panels bead-moulded flush with framing from 2in. stuff. A good heavy door is necessary to withstand a southern aspect, where the sun is very trying upon woodwork. It is advisable to have this door in two leaves; in fine weather it is left open, and the two narrow leaves projecting into the porch are less in the way than one wide door would be. The leaves are hung each by four heavy butt-hinges to the heavy door frame. The door-opening is 3½ft. wide, its height is 7ft. 2in.; one-half is fastened by two spring bolts at top and bottom, the other leaf has a drawback-lock and a latch; each leaf has a brass knob on the lock-rail; the keyhole is covered with a brass-hinged flap cover; a brass-framed electric bell-push is fixed in the meeting still about half-way up the middle panel. The door-framing is perhaps sufficiently shown in the plan of porch details: the lights are in sashes fitted into the framing; they are fixed with brass screws. In the porch the small portions of walls which are not covered by architraves on jamb-linings are matchboarded in narrow breadths with beaded joints; the ceiling is of match-boarding in herring-bone pattern, finished with the cornice-moulding as shown. The door between the porch and hall is in one. It has top panels of plate glass; the styles and muntin above are diminished; framing, 2in. thick; panels ¾in.; opening, 7ft. high; 3ft. 6in. wide: door hung on four heavy butt hinges, heavy mortice lock, heavy elliptical brass handles. Door frame, 4½in. by 4in., filled in with sashes as shown to fill up to the ceiling: bottom panels to match door panels. Dining-room, drawing-room and morning-room doors—size of doors 7ft. by 3ft. 3in.: four panels, framing 2¼in. thick, full panels ¾in. hung to door frames of 4in. by 2in., well secured to the walls, each door to have three heavy butt hinges: mortice locks and furniture as shall be described. The door to the passage is 7ft. by 3ft., four panels, top panels glass, diminished styles, white muranese: there is fairly good light here from the window next dairy, and from the kitchen when the door is open, which is usually its position. The halls are well lighted both above and below. The glass panels of this

door give useful additional light here when the kitchen door is shut: door furniture and architraves to match the other doors in the hall. Four bedroom doors, dressing-room door, schoolroom and linen-room door, each 6ft. 6in. high and 3ft. wide. Bath-room door, 6ft. 6in. high, 2ft. 6in. wide, four-panelled, framing 2in. thick (full), panels ⅝in. thick, each hung with two heavy butt hinges to 2in. by 4in. door frames; mortice locks, &c., as afterwards (bathroom vacant and engaged inside bolt) described. Servants' bedrooms doors (2), dairy, store, pantry, kitchen, scullery to fuel: seven doors each 6ft. 6in. high by 3ft. wide, framed and staved 2in. (full) framing, staving ¾in. in narrow slaves beaded (and rails and stiles beaded and mitred) ⅞in. thick, lock rail and bottom rail 9in. and rail between lock rail and head 4in. all 1⅛in. thick, all in solid rabetted frames showing ½in. corner bead 4in. by 2½in. stuff, each door to have two heavy butt hinges, rim locks, &c., as hereafter described. Doors, scullery to yard and yard to outside and outside door of fuel house, three doors, 6ft. 8in. high by 3ft. 6in. wide, also framed and staved framing 2½in. thick, sheeting 1in. and rails 1¼in. thick, three heavy butts, frames 4in. by 3in. stock locks, thumb latches. Outside w.c.—two doors, 6ft. 6in. high, 2ft. 4in. wide, framing 2in., rails 1⅛in. staving ⅛in., door frames 2in. by 4in. stock locks, thumb latches and inside bolts.

(To be continued.)

THE ASSUAN DAM.

A PAPER on "The Nile Reservoir, Assuan," by Mr. Fitzmaurice, C.M.G., B.A.I., M.I.C.E., was read before the Institution of Civil Engineers on January 27th.

Beginning with an account of the River Nile, the author stated that, with the exception of the northern margin of the Delta along the coast of the Mediterranean, Egypt was a country practically without rain and absolutely dependent on the Nile for its water-supply. The volume of water in the river during the winter months was much larger than was required for the needs of the country, and during the summer months the supply was not nearly sufficient. It was therefore not surprising that the construction of reservoirs which should enable part of the surplus winter water to be stored for use during the summer months had been under consideration in Egypt for many years.

The discharge of the Nile fell to about 400 cub. metres (14,000 cub. ft.) per second during the summer, and was at a minimum about the middle of May. A slow increase in the discharge then began and continued until the middle of July, after which date the increase became very rapid. By the first week in September the Nile was in full flood, and in an average year the discharge was then about 10,000 cub. metres (353,000 cub. ft.) per second, while in a year of very high flood the discharge might rise to 14,000 cub. metres (494,000 cub. ft.) per second.

The above dates referred to the Nile at Assuan, which town was about 1,200 kilometres (750 miles) from the Mediterranean. The Nile as it entered Egypt proper at Assuan was the product of three rivers—the White Nile, coming from the lakes of Central Africa, and the Blue Nile and the Atbara, rising in the Abyssinian Mountains. The two latter rivers when in flood brought down large quantities of valuable fertilizing mud or silt, which was made great use of in the method of irrigation called in Egypt basin irrigation.

In the construction of any reservoir in the valley of the Nile precautions were necessary to prevent the silting up of any reservoir which might be formed.

At Assuan a masonry dam 2,000 metres (2,185yds.) long and of a maximum height of 39·5 metres (130ft.) had been built across the valley of the Nile, thus forming a huge reservoir extending southward from the dam 225 kilometres (140 miles) into Nubia.

No attempt was made to store water while the Nile was in full flood, when its waters were carrying large quantities of silt. Sufficient sluices were provided in the dam to allow the Nile to pass through when in flood without any appreciable diminution in its velocity, and consequently without causing any deposit of silt in the reservoir. No water was allowed to flow over the dam, as the sluice-way was sufficient for all purposes. After the muddy flood had passed and the water had become clear, at which time the discharge of the river had fallen to about 2,500 cub. metres (88,000 cub. ft.) per second, the filling of the reservoir was begun by gradually dropping some of the sluice-gates. The water then continued to rise in the reservoir until it attained a height of 8 metres (26ft.) above high-Nile level or 16 metres (52ft.) above low-Nile level. In an average year this happened towards the end of February, and after that time the water reaching the reservoir from the south was passed on through the partially opened sluices. Early in May the sluices were gradually opened, and the normal discharge of the river was increased until the reservoir was emptied early in July. This additional water in summer would enable a much larger number of crops to be obtained, and would be specially valuable for the cotton crop.

The greatest head of water on the dam would be about 20 metres (65ft.), and the storage capacity of the reservoir was estimated at 1,065 millions cub. metres (37,612 millions cub. ft.).

There were 180 sluices in the dam, of which 140 were 7 metres (23ft.) high by 2 metres (6½ft.) wide, and forty were 3½ metres (11½ft.) high by 2 metres (6½ft.) wide. They were fixed at different levels in the dam, so as to allow the discharge of the water according to the varying levels of the reservoir. Those sluices, which had to be worked under a great head of water, were fitted with Stoney roller gates, while those working under a small head had ordinary sliding gates. The majority of the sluices were lined with granite ashlar, but owing to the comparatively short season available for building some had been lined with cast-iron, to save time. A hand-winch was fixed over each sluice on the top of the dam, to lift and lower the gates. The dam crossed the Valley of the Nile at the head of the Assuan or First Cataract, and the rock at this point was granite. The dam was built of granite in cement-mortar, and all the stone had been obtained within a short distance of the works. Both faces of the dam were built of coursed squared rock-faced granite, the up-stream face being laid in 2-to-1 cement-mortar and the down-stream face in 4-to-1 mortar. All these stones had been laid by steam cranes. The hearting consisted of granite rubble, and had been laid by hand and set in 4-to-1 mortar. The bottom 2ft. of rubble had, however, been built in 2-to-1 mortar. A good supply of excellent granite sand had been obtained within a reasonable distance. The average actual weight of the masonry was 2,396 kilos. per cub. metre (149·5lbs. per cub. ft.), and the maximum pressure on the masonry with the reservoir full was 4·35 kilos. per sq. centimetre (4 tons per sq. ft.).

All masonry had been built in the dry, and to enable this to be done the river had been dealt with in short lengths and temporary dams (called in Egypt "sudds") had been built to enclose the site of each portion of the work. These sudds had either been of stone or of sand in bags. It had been expected that considerable difficulty would be experienced in dealing with the leakage through the sudds, and a very large pumping-plant had been provided; but the amount of leakage had been found to be much less than anticipated. The sudds had only been made high enough to deal with the work during the time of low Nile, as it would have been impossible to make them strong enough to withstand the Nile in flood. Great and unexpected difficulties had been encountered in the deep channels, owing to finding the granite quite rotten for a long way below the level of solid rock shown on the contract drawings. In one of the channels the rotten rock had extended 11⅓ metres (38ft.) below where it had been supposed sound rock would be found. As the non-completion of the masonry between the sudds in each section would have necessitated the re-making of the sudds in the following season, great efforts had had to be made to deal with the unexpectedly increased quantities of excavation and masonry before the arrival of the Nile flood. This had been particularly the case during the months of June, July and August, 1900. During the month of June work had been carried on night and day, weekdays and Sundays, and 45,000 cub. metres (58,860 cub. yds.) of masonry had been built during the thirty days. The average daily number of masons employed during the month had been 353. The total number of men either directly employed or connected with the work, and living on the site of the work at that time, had not fallen far short of 15,000. A subsidiary work had been the underpinning of the Temple of Philæ. As portions of the temple were founded on silt it had been necessary to carry the masonry down either to rock or to the existing saturation-level so as to prevent any damage from settlement.

Law Cases.

The Back of a House.—At Greenwich Police Court James Stanford, builder, Lewisham, was summoned before Mr. Baggallay by Mr. Badger, district surveyor to the London County Council, for erecting two houses in Radford Road, Lewisham, in contravention of the London Building Act, section 41. The defendant had built a number of houses in Theodore Road and Radford Road, and at the point where the two roads converge had erected the two houses in question, somewhat peculiar in shape. Attached to the house was certain land, but the Council contended that the defendant had not complied with the Act, which provided that a space of 10ft.—the width of the house—should be provided at the rear. The question to be decided was which was the rear of the house, the Council asserting that it was that part which was directly opposite to the front. If this were so, there would be no sides to the houses, and the rear was that part containing the back door and back windows. Taking this view, the space behind the houses was 762 sq. ft. and 575 sq. ft. respectively. After a long hearing Mr. Baggallay said he was inclined to think the defendant was right, and that he had provided ample space behind both houses. He dismissed the summons, but declined to grant costs, considering the case a proper one for the Council to bring.

The Building of a Theatre.—In the King's Bench Division the matter of an arbitration between Kirk & Randall and Sir Charles Wyndham was heard. This was a motion on behalf of Sir Charles Wyndham to set aside an award made by a Mr. Runtz on October 6th last. On behalf of Sir Charles Wyndham, he contended that Mr. Runtz had no jurisdiction to act as arbitrator under the contract between the parties. The facts were that there was a contract between Sir Charles Wyndham and Messrs. Kirk & Randall

under which the latter were to build another theatre for Sir Charles in St. Martin's Lane. There was a provision in the contract that any difference or dispute particularly relating to the withholding of any certificate by the architect, Mr. Sprague, should be referred to arbitration and decided in the first instance by Mr. Goodwyn, and if he failed to act by Mr. Runtz. A dispute arose as to the withholding of a certificate by the architect, Mr. Sprague, for £2,000. The services of Mr. Goodwyn were sought, and he was either actually away upon his holidays or was just going away for a fortnight or three weeks and would not return until September 3rd. He, therefore, said if the matter was urgent, he could not deal with it. It was considered urgent, and thereupon Mr. Runtz was applied to, and on August 26th made an appointment to hear the parties. Before that day arrived the architect thought that some work had been done, and, in order to make things as smooth as possible, he gave a certificate, and the sum demanded (£2,000) was paid. Shortly afterwards Messrs. Kirk & Randall said that that sum was not enough, and they asked for another £2,000, which was refused. Messrs. Kirk & Randall desired to refer the matter to Mr. Runtz; Sir Charles Wyndham's advisers decided to appeal to Mr. Goodwyn. Sir Charles Wyndham's representatives appeared before Mr. Runtz and raised their point. Messrs. Kirk & Randall appeared before Mr. Goodwyn and raised their point. Mr. Runtz, under an award of October 6th, awarded Messrs. Kirk & Randall the whole amount due, and costs between solicitor and client. Mr. Goodwyn, under an award of October 10th, awarded them nothing at all.—The Lord Chief Justice suggested that the parties should arrive at some agreement as to what should be done, and it was ultimately arranged that all matters in dispute between Sir Charles Wyndham and Messrs. Kirk & Randall should be referred to a gentleman upon whom the parties agreed, or, failing agreement, to some one appointed by the Bench, each party to pay their own costs in regard to the awards which had been made.—Order accordingly.

Surveying & Sanitation.

The Royal Commission on Sewage Disposal met last week to take evidence on the question of the pollution of estuaries, more especially with reference to shellfish. Captain Anderson (Whitstable), Alderman Petrie (Liverpool), and Mr. J. Wrench Towse (clerk to the Fishmongers' Company) were examined.

The Municipality of Alexandria is considering the question of the drainage of the city, and a scheme has been advised by Dr. J. Hebrecht, chief engineer to the city of Berlin, and prepared by Dietrich Bey, chief engineer and director of the Municipal Technical Department, and M. P. Arcondaris, engineer and sub-director. The main features are as follows:—The sewage and surface water of the city are to be drained by gravitation on the "combine" system, and discharged in a crude state into the sea by a main collector of ovoid shape having discharges at Fort Pharos and Silsileh. Mr. C. J. James, special drainage engineer to the city of Bombay, has been invited to consider the proposal, and he has lately addressed a report to M. Ambroise Ralli, the Vice-President of the municipality of Alexandria, in which he condemns Dr. Hebrecht's scheme unsparingly, contending that a large part of the city is so little above mean sea-level that gravitational drainage will be a failure, and that the practice of discharging crude sewage into the sea "would lead to most serious results." The outfalls proposed lie in such a position "that for more than two-thirds of the year the prevailing winds will blow across one or other of them in the direction of the city, and the result . . . can only be a great and continual nuisance." Without making any very definite or complete suggestions, Mr. James is of opinion that the sewage should certainly be biologically treated before being discharged into the sea, and he finds that the soil around Alexandria is eminently suited for such irrigation and would give a good return. It is hardly probable that the Hebrecht scheme will be adopted after this severe criticism.

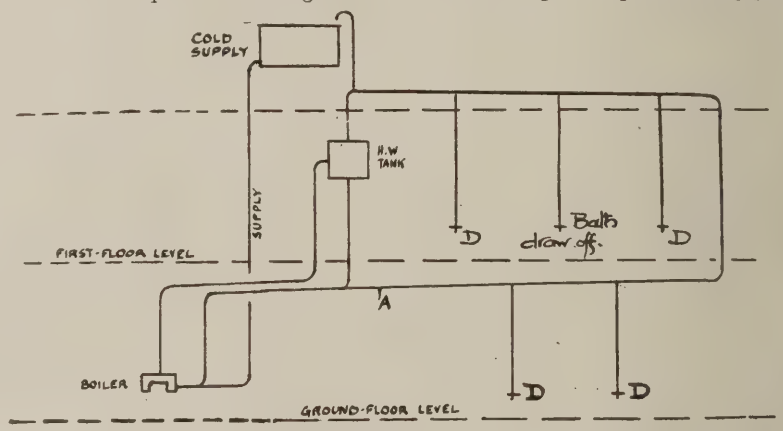
Rural Drainage.—Mr. H. T. Scoble's paper on "Rural Drainage and Sewage-Disposal," read at the previous meeting, was discussed at the Surveyors' Institution last week. Professor Robinson said it was of the utmost importance that all drains should be subjected to the water test, and he was strongly of opinion that the water-carriage system would prevail. The dry-earth or conservancy system he held to be attended with great risk to the health of the community, however carefully the disposal of sewage might be conducted. The requirement of the Local Government Board for land purification in the proportion of an acre to a thousand population could be modified with proper safeguards. There was no matter for dogma in this or in regard to bacterial treatment; each method was capable of being used under skilled advice, and every case must be governed by its surrounding conditions. Mr. Roechling, agreeing with many of the remarks in the paper and deploring the waste of manurial matter, was not in accord with the remedy proposed by the interposition of an expensive and elaborate intermediate process before disposing of sewage on land. There was no necessity for this treatment; land would do all that the bacterial process would do. Mr. A. R. Stenning referred to the difficulties attending the disposal of sewage in small rural villages. For disposing of excreta there was nothing better than the earth treatment, but difficulties arose in connection with sink water. The question of rural sewage was inseparably connected with water-supply, and these difficulties had to be met. Dr. Poore severely condemned the sewage system. He formerly lived in the Thames Valley, when the rates were 4s. 2d., but the local authorities in ten years borrowed £133,000 for the construction of sewers, raised the rates to 8s. 2d., and had created a filthy quagmire in the middle of the place. He described the system he had followed with success at Andover. For many years he had dealt with the sewage from 100 people living in old cottages. He had shown by his method that excreta should be buried just below the surface, and, rightly carried out, this could be done quite near the house without offence to the senses. He could not see why this system should not be adopted piecemeal in rural villages with an equitable adjustment of a sanitary rate. For the cost of sewers there should be a tax on water-closets. Mr. Beken, Mr. C. J. Mann, Mr. A. J. Martin and Mr. E. W. Booth continued the discussion, and Mr. Scoble replied, defending his view that the proper method to pursue was to purify the sewage and make use of the effluent.

Enquiries Answered.

The services of a large staff of experts are at the disposal of readers who require information on architectural, constructional or legal matters. Questions should in all cases be addressed to the Editor. The querist's name and address must always be given, not necessarily for publication.

Hot-Water Service in a Country House.

LONDON.—G. A. P. writes: "The accompanying sketch shows a hot-water supply system in a country house. The supply to bath is unsatisfactory, coming in gushes hot and cold. I have no doubt that the water, instead of drawing from the hot-water tank only, also draws up the return pipe from the cold supply. Do you know of any form of 'check' or non-return valve, which could be placed at A, which would prevent the water drawing back up the return pipe without interfering with the water circulating the other way?"



HOT-WATER SERVICE IN A COUNTRY HOUSE.

There is no reliable check valve that can be used on circulating pipes; the arrangement of the pipes must be such as will ensure a delivery of hot water at the hot-water tap as long as there is any in the tank. And the arrangement of each system must be considered on its merits, no general rules being sufficient for all systems. In the case shown on sketch there should be a service and secondary return for each floor. The secondary return on the first floor should be connected to the side of the tank. That on the ground floor should be connected to the primary return. In the case shown, if the water issues at the hot-water tap at bath faster than it enters through the cold supply from cistern, the bath will be supplied from the return pipe rather than from the tank, the secondary flow being higher at the connection with the expansion pipe than at the connection with the bath draw-off. If the primary flow is restricted in area by "furring" it will also help to send the water to the bath tap through the secondary return.

G. A. A.

Books on Shoring and Sanitary Engineering.

READING.—STUDIOUS writes: "Where can I get Stock's 'Shoring and Underpinning,' and Moore's 'Sanitary Engineering, and what are the respective prices?"

Write to Mr. B. T. Batsford, 94, High Holborn, London, W.C. Your other query will be answered next week.

Sewer.

YORKS.—M. A. T. writes: "Should a corporation provide a sewer to receive drainage of a house now in course of erection, the existing sewer being 50ft. from the nearest point of the site, as shown on sketch enclosed (not reproduced), no provision being made for surface-drainage for 130ft. of such road, which is one that has existed over an indefinite period, in the centre of a town of over 15,000 inhabitants?"

The corporation cannot be compelled to bring their sewer within 50ft. of the boundary of the property in question. The matter was probably considered when the sewers were laid down; for, according to the sketch, the nearest point of the site is about 50ft. from either of the sewers shown. If the frontage had been less than shown, and the nearest point of the site, consequently, farther than 50ft. from the sewer on the left, the corporation would probably require a connection into the sewer on the right, which would be within the prescribed distance.

Duplicator for Specifications, &c.

CHESTERFIELD.—QUERY writes: "Which is the best duplicator for specifications, quantities, &c., for architects use, and where can it be obtained?"

It depends on the number of copies required, and the length of the specification, &c. If the latter extends to twenty or thirty folios, any process of duplication becomes wearisome, and it is better to enlist the services of the printer or lithographer. If marginal sketches are included lithography must be resorted to. For short specifications of which few copies are required, Ellam's Duplicator (12 King Street, Cheapside) or the Rotary Neostyle machine (64 Great Eastern Street, E.C.) may be employed. Both machines work on the same principle, that of inking through stencilled sheets. In the case of Ellam's Duplicator the stencil sheets may be either hand-written (with a specially prepared point) or typed; but with the Neostyle, only typewritten matter can be reproduced. We have also seen specification folios typed on tracing paper and reproduced by the "sun-print" process; but the result was trying to read. Typewriting firms will type specifications at a 1d., 1½d., or 2d. a folio.

Books on the Charterhouse.

LONDON, W.—W. S. D. writes: "What books have been published referring to the Charterhouse?"

There are two or three works on the London Charterhouse; but they are out of print. It is possible you could obtain copies through a second-hand bookseller or by advertising. A good book on the Monastic history is "The London Charterhouse" by Dom. Laurence Hendrik. The latest literature from an architectural point of view are the two fully-illustrated articles by Mr. Basil Champneys, which appeared in the May and June issues of "The Architectural Review" last year. These can be obtained from the Publisher, 6, Great New Street, E.C., for 1s. 5d. post free.

Thickness of Walls.

MINEHEAD.—TEE-SQUARE writes: "I have just sent in some plans for some semi-detached houses to be built here, on which the walls on the ground floor were shown 16in. brick cavity walls and on the floors over 11in. brick cavity walls, rough-cast on the outside, and the urban district council has rejected them because they say that, according to their by-laws, the walls on the first floor must be 13½in. thick. I consider that an 11in. cavity wall, well bonded, and rough-cast outside, is quite as strong and drier and more weatherproof than an ordinary solid brick wall 13½in. thick. I shall feel very much obliged if you will tell me whether I shall be justified in going on with these houses. I may mention that the walls on the second floor, except in the gables, are only 4ft. higher than the level of the floor."

The district council can enforce their by-laws, and non-compliance on your part must be at your own risk. At the same time we do not consider an 11in. cavity good construction. Why not use half-timber work?

Book on Architectural Ornament.

X. Y. Z. writes: "Kindly name a good book (moderate price) on ornament—one that deals purely with architectural ornament and not coloured decoration or art designs."

We know of no book devoted to architectural ornament alone. We advise you to get Meyer's "Handbook of Ornaments," published by B. T. Batsford, 94, High Holborn, W.C.

Laundry Fittings.

LONDON, N. writes: "Can you recommend any published work giving plans and particulars of furnishing required for a laundry for country house? I wish to judge also which would suit the requirements of the case in question, and whether permanent or portable fittings are mostly used and the details of them."

No particulars are given as to the size of the house, or the possible amount of work to be done. Without this information it is impossible to advise our correspondent. There are works on steam laundry plant, and if the house is a large country mansion, or the building is used as a school or institution, it might pay to instal a small steam plant. There are no works on old-fashioned laundries with their 'dolly-tubs,' &c. The only rule is, so much work so many laundry maids and so many tubs. At the same time, the old-fashioned methods, so far as the clothes are concerned, have never been equalled by the steam-plant.

Institution of Civil Engineers Examinations.

DOUBTFUL writes: "Would you kindly inform me if it is possible to sit for the 'Associate Membership' examination in the above Institution without first taking the Studentship examinations—that is to say, is it possible to take the Associate examination direct? With reference to the Civil Service examinations, would you explain the difference (if any) between assistant surveyor, 2nd grade, H.M. Office of Works and assistant surveyor, 2nd grade, in the Public Works Office. Are there any examinations which will admit you into the Public Works Office, or is it by influence chiefly that such situations are obtained?"

The examination for Associate Membership of the Institution of Civil Engineers may be taken direct without previously passing that for students. The writer does not know of any department of the Civil Service called the Public Works Office, and therefore is not aware of any examination for the same other than H.M. Office of Works. HENRY ADAMS.

The A.A. Classes.

LOWESTOFT.—IONIC writes: "What are the Architectural Association classes? What benefit could I derive from them, and how could I join same? Please tell me also the date on which Vol. XVI. (the current volume) of the BUILDERS' JOURNAL started, and if I can get the back numbers."

If "Ionic" is bound to reside at Lowestoft it will be difficult for him to attend the A.A. classes, which are held in London. He can obtain all information from the Secretary, The Architectural Association, 56, Great Marlborough Street, W. The classes are, in the opinion of competent authorities, the best in the kingdom for architectural students to obtain a good grounding in all branches of their art. There are social and other advantages, such as the lectures, &c., to be obtained by joining the Association. The current volume of this journal commenced with No. 393, dated August 20th, 1902. Back numbers can be obtained from the Publisher, 6, Great New Street, E.C.

Height of Chimneys.

ABERYSTWYTH.—CYMRO writes: "Will you kindly give me advice on the following matter. A and B are both lessees under a municipal corporation as ground landlords. A built a house to the satisfaction of the Corporation, and received his lease. B built an adjoining house and bought half the 'pine end' from A. B carried his house about 5ft. higher than the eaves of A's. The tenant of A is seriously affected through B's chimney being carried about 3ft. higher than that of his house, which causes all his flues to smoke. Is it B's duty to carry A's chimney to the height that he has built his, or A's duty to build up to the level of B's chimney, A's stack already being 5ft. higher than the ridge? Has A any claim on B for loss or obstruction? B has not received, as yet, his certificate for lease from the Corporation surveyor."

In my opinion you have no legal remedy either against the Corporation or your neighbour B. In the absence of special stipulations to the contrary B has a perfect right to build his house as high or as low as he wishes, regardless of the unpleasant and injurious consequences his act may have on his neighbours; the plot he leased is his *solum ad cœlum*, "from the earth to the sky," to use as he will. Such is the common law. There are, however, a few exceptions to the general proposition which I have stated. One is where his common law rights are curtailed by statute, *e.g.*, the Metropolitan Building Acts. Another where custom or statute gives prescriptive rights to adjoining owners, which are in the nature of easements, and generally consist of rights of way and rights to air, light, &c. From the facts as stated I do not think A's case would entitle him to relief under either of these heads. I think, however, as B has not yet received his certificate from the Corporation, that a judicious communication to them from A might induce them to compel the former to raise A's chimney to a proper elevation.

W. JOHNSON-ROBERTS.

Right of Light.

ROCHDALE. — CONSTANT READER writes: "I have a plot of ground on which I propose to erect cottages. Some windows in adjoining property have enjoyed a view over this ground for twenty years, and are therefore ancient lights. My cottages have been designed to avoid interfering with these lights; but at the present time a new washhouse is being erected, the front wall of which extends 6ft. nearer to my land. A window has been fixed in this wall, materially occupying the same position in the new wall as the ancient light occupied in the old. Am I justified in blocking the light of this window, or any window that has been enlarged? The effect of the alterations considerably affects my plans."

The advancement of a wall in which ancient lights are situated will not lose the right of light, provided substantial portions of the old windows are included in the new apertures; and the fact that a wall is moved back or advanced does not *per se* alter the right, although by either operation the right may be lost if, after the building has been moved, the light which formerly flowed into the old apertures cannot come in at the new. You have the right to block the light from the enlarged part of an ancient light; but you will find it impossible to do this without affecting the light of the rest of the window, which is protected.

Complete List of Contracts Open.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDERS MAY BE OBTAINED.
	BUILDING:		
Feb. 5	Denby Dale—Hall and Sunday Schools		G. Moxon, 26 Church Street, Barnsley.
" 5	Halifax—Converting Hall into Residences		R. Horsfall & Son, 22A Commercial Street, Halifax.
" 5	London, S.E.—Repairs to Infirmary Kitchen Floors, &c.	St. Olave's Union Guardians	Newman & Newman, 31 Tooley Street, S.E.
" 5	Tipton—Schools	School Board	A. Long, 21 New Street, West Bromwich.
" 5	Haworth, Yorks—Sunday School		T. W. Bottomley, 16 Prince Street, Haworth.
" 6	Lockwood, near Huddersfield—House, &c.		J. B. Abbey & Son, 34A New Street, Huddersfield.
" 6	Swansea—Police and Fire Station	Corporation	J. Thomas, Town Clerk, Guildhall, Swansea.
" 6	Stornoway, Island of Lewis—Boathouse, &c.	Admiralty	Director of Works Department, Admiralty, 21 Northumberland Avenue, W.C.
" 6	Cape Town—Locks		Controller of Stores, General Post Office, Cape Town.
" 6	The Needles, Isle of Wight—Coast Guard Buildings		Superintending Engineer, Portsmouth Dockyard.
" 7	Caergwrle, Flints—Police Station and Court House	Flintshire County Council	J. H. Davies & Sons, 14 Newgate Street, Chester.
" 7	Cefn Cribbwr, near Bridgend, Wales—Twenty Houses		J. & F. J. Hurley, 10 Bridgend Road, Tondu, Aberkenfig.
" 7	Chelmsford—Hospital Building	Joint Hospital Board	A. S. Duffield, 96 High Street, Chelmsford.
" 7	Reynolton, Pembrokeshire—House, &c.		J. P. James, Architect, Tenby.
" 9	Ilford—Schools	School Board	C. J. Dawson, 7 Bank Buildings, High Street, Ilford.
" 9	London, N.W.—Lime, Cement, Bricks, &c.	St. Pancras Borough Council	W. N. Blair, Borough Engineer, Town Hall, Pancras Road, N.W.
" 9	Walsall—School, &c.	School Board	Bailey & McConnal, Bridge Street, Walsall.
" 10	Newton Abbot, Devon—Casual Wards, &c.	Guardians	S. Segar, Architect, Union Street, Newton Abbot.
" 10	London, W.—Lime, Cement, Bricks, &c.	Kensington Borough Council	W. C. Leete, Town Clerk, Town Hall, Kensington.
" 10	Harrow—Classroom, &c.	School Board	Houston & Houston, 1 Long Acre, London, W.C.
" 10	London, S.E.—Repairs	St. Mary-le-Strand Charity Trustees.	T. H. Cole, 858 Old Kent Road, London, S.E.
" 10	West Ham—Slates, Lime, Cement, &c.	Town Council	Borough Engineer, Town Hall, Stratford.
" 11	Halifax—Works	J. Whittaker & Sons	G. Buckley & Son, Architects, Tower Chambers, Halifax.
" 11	London, W.—School	Chiswick School Board	G. Saunders, 111 King Street, Hammersmith.
" 11	Merthyr, Wales—Schoolroom		T. Roderick, 50 Glebeland Street, Merthyr.
" 11	Birkenhead—Bricks, Cement, &c.	Corporation	C. Brownridge, Borough Engineer, Town Hall, Birkenhead.
" 12	Barry, Wales—School	School Board	G. Thomas, Architect, Queen's Chambers, Cardiff.
" 12	Edgerton, near Huddersfield—Alterations to Ravensdeane		J. Kirk & Sons, Architects, Huddersfield
" 13	Leicester—Generating Station, &c.	Tramways Committee	E. G. Mawbey, Engineer, Town Hall, Leicester.
" 14	Bishop Auckland—Laundry, &c.	Rt. Hon. Lord Barnard	F. H. Livesay, 107 Newgate Street, Bishop Auckland.
" 14	Colne—Sewage Farm Extensions	Corporation	T. H. Hartley, Borough Surveyor, Town Hall, Colne.
" 14	Maesteg, Wales—Sixty Houses	Nantyffyllon Builders' Society	W. W. Paddison, Architect, Llynvi Offices, Maesteg.
" 14	Colne, Lancs—Bricks, Lime, Cement, &c.	Highways & Streets Committee	T. H. Hartley, Borough Surveyor, Colne.
" 16	Morpeth—Cattle Market Works		Surveyor, Bridge Street, Morpeth.
" 16	Northwich—Building Materials	Weaver Trustees	J. A. Sauer, Engineer, Weaver Navigation, Northwich.
" 16	Biggleswade—School		Townsend & Fordham, Architects, Cross Street, Peterborough
" 19	Liscard, Cheshire—Chimney, &c.	Wallasey U.D.C.	J. H. Crowther, Engineer, Great Float, near Birkenhead.
	ENGINEERING:		
Feb. 5	Sunderland—Cranes	Corporation	J. F. C. Snell, Electrical Engineer, Town Hall, Sunderland.
" 5	Swansea—Sinking Shafts	Harbour Trustees	A. O. Schenk, Engineer, Harbour Offices, Swansea.
" 7	Londonderry—Pump	Rural District Council	M. A. Robinson, Engineer, Richmond Street, Londonderry.
" 7	Misterton, Somerset—Sewerage and Water-Supply Works	Chard R.D.C.	C. Combes, Engineer, Tisbury, Wilts.
" 9	Glasgow—Dredger	Clyde Navigation Trustees	G. H. Baxter, 16 Robertson Street, Glasgow.
" 9	Clevedon, Somerset—Regenerator Furnaces, &c.	Gas Committee	J. H. Pye, Engineer, Gasworks, Clevedon.
" 10	Edinburgh—Electric Lighting	Lord Provost, Magistrates and Council.	Resident Electrical Engineer, Electricity Supply Station, Dewar Place, Edinburgh.
" 10	West Ham—Purifier, &c.	Town Council	J. K. Bock, Electrical Engineer, Abbey Mills, West Ham.
" 10	West Ham—Electrical Stores	Town Council	J. K. Bock, Electrical Engineer, Abbey Mills, West Ham.
" 10	Stourbridge—Livesay Washer	Gas Committee	W. North, Engineer, Gasworks, Stourbridge.
" 10	West Ham—Electrical Equipment of Tramways	Town Council	J. K. Bock, Borough Electrical Engineer, Abbey Mills, West Ham.
" 10	London, S.W.—Trench Work	London County Council	County Hall, Spring Gardens, S.W.
" 11	Henley-in-Arden—Gasholder and Tank	Gas Committee	J. W. Lord, Secretary, Gas Co.'s Offices, Henley-in-Arden.
" 12	Southampton—Boreholes	Corporation	W. Matthews, 18 & 19 French Street, Southampton.
" 12	Southampton—Engine	Corporation	W. Matthews, 18 & 19 French Street, Southampton.
" 12	Guayaquil, Ecuador, South America—Lighting	Municipal Council	Ecuadorian Consulates, 35 Chapel Walks, Liverpool.
" 12	London, N.E.—Electrical Plant	Hackney Borough Council	R. Hammond, 64 Victoria Street, Westminster, S.W.
" 12	York—Bridge and Approaches	North-Eastern Railway Co.	W. J. Cudworth, Company's Engineer, York.
" 13	Menston, Yorks—Reservoir	Wharfedale R.D.C.	E. J. Silcock 10 Park Row, Leeds.
" 13	Darlington—Electrical Plant	Corporation	H. G. Steavenson, Town Clerk, Darlington.
" 14	Bamford—Reservoir	Chapel-en-le-Frith R.D.C.	Sterling & Swann, Engineer, Town Hall, Chapel-en-le-Frith.
" 14	Southampton—Motors, &c.	Ordnance Survey	Officer in Charge of Stores, Ordnance Survey Office, Southampton.
" 14	Coventry—Gasholders	Corporation	F. W. Stevenson, Engineer, Gasworks, Coventry.
" 14	Hinckley—Excavating, &c., Foundations of Gasholder Tank	Urban District Council	F. Lee, Engineer, Gasworks, Hinckley.
" 14	Thurnscoe and Denaby, Yorks—Railway		S. R. Kay, 1 Albion Place, Leeds.
" 17	London, E.C.—Sewer	Corporation	Engineer, Guildhall, E.C.
" 18	Hull—Telephone Equipment	Corporation	A. K. Bennett, 65 Renfield Street, Glasgow.
" 19	Plymouth—Wharf	Town Council	Sir J. Wolfe-Barry & Partners, 21 Delahay Street, Westminster.
" 19	Liscard, Cheshire—Feed-water Softener, &c.	Wallasey U.D.C.	J. H. Crowther, Engineer, Great Float, near Birkenhead.
" 24	Castle Cary and Langport, Somerset—Railway	Great Western Railway Co.	Engineer, Paddington Station, London.
" 26	Bulawayo, Rhodesia—Electric Tramway	Municipal Council	Davis & Soper, 54 St. Mary Axe, E.C.
" 28	Singapore—Graving Dock	Tanjong Pagar Dock Co., Ltd.	Tanjong Pagar Dock Co., Ltd., 120 Fenchurch Street.
March 2	Boston, Lincs—Heating Municipal Buildings	Town Council	J. Rowell, Architect, Borough Offices, Market Place, Boston, Lincs.
July 1	Rangoon—Electric Supply Undertaking	Municipal Committee	Ogilvy, Gillanders & Co., 67 Cornhill, E.C.
	FURNITURE:		
Feb. 9	Leeds—Furniture and Fittings for Police Station	Corporation	W. H. Thorp, 61 Albion Street, Leeds.
	IRON AND STEEL:		
Feb. 6	Cape Town—Locks		Agent-General for Cape Colony, 100 Victoria Street, S.W.
" 7	Chelmsford—Fencing	Hospital Board	A. S. Duffield, 96 High Street, Chelmsford.
" 7	Manchester—Steel Roof	Gas Committee	C. Nickson, Superintendent Gas Department, Town Hall, Manchester.
" 7	Middleton, Lancs—Wrought-iron Railings	Corporation	W. Welburn, Borough Surveyor, Middleton.
" 7	Belfast—Railway Stores	Belfast and Northern Counties Railway Co.	Mr Ellis, Stores Superintendent, York Road Station, Belfast.
" 9	Manchester—Plate-Heating Grids, &c.	Corporation	H. Prescott, Manager, House Drainage Department, Town Hall, Manchester.
" 9	Southampton—Rails	Corporation	J. A. Crowther, Borough Engineer, Market Chambers, Southampton.
" 9	London, N.—Iron and Steel &c.	Hornsey U.D.C.	E. J. Lovegrove, Engineer, Southwood Lane, Highgate N.
" 9	London, N.W.—Smith and Founders' Work, &c.	St. Pancras Borough Council	W. N. Blair, Borough Engineer, Town Hall, St. Pancras, N.W.
" 9	Edinburgh—Mains	Gas Commissioner	W. R. Herring, Chief Engineer, New Street Works, Edinburgh.
" 9	London, N.—Stores and Ironmongery, Iron, Steel, &c.	Hornsey U.D.C.	E. J. Lovegrove, Engineer to Council, Southwood Lane, Highgate.
" 10	London, W.—Iron Goods, Lamp Columns, &c.	Kensington Borough Council	W. C. Leete, Town Clerk, Town Hall, Kensington.
" 10	West Ham—Iron Castings, Ironmongery, &c.	Town Council	Borough Engineer, Town Hall, Stratford, E.
" 10	London, E.C.—Railway Stores	South Indian Rly. Co., Ltd.	Secretary, 55 Gracechurch Street, E.C.
" 11	Birkenhead—Cast-iron, Steel, &c.	Corporation	C. Brownridge, Borough Engineer, Town Hall, Birkenhead.
" 11	Dartford, Kent—Fencing, &c.	Metropolitan Asylums Board	A. & C. Harston, 15 Leadenhall Street, E.C.
" 11	Belfast—Railway Stores	Belfast and County Down Railway Co.	T. J. Brittain, Secretary, Queen's Quay Terminus, Belfast.
" 12	London, N.E.—Sewer Ironwork, &c.	Hackney Borough Council	N. Scorgie, Borough Engineer, Town Hall, Hackney, E.
" 14	Colne, Lancs—Ironwork, &c.	Highways and Streets Committee	T. H. Hartley, Borough Surveyor, Colne.
" 16	Northwich—Iron and Steel, &c.	Weaver Trustees	J. A. Saner, Engineer, Weaver Navigation, Northwich.
" 14	Richmond, Surrey—Ironfounder's Work, &c.	Town Council	J. H. Brierley, Borough Surveyor, Town Hall, Richmond.
" 16	Plymouth—Ironware, Iron and Steel Bolts, Nuts, &c.	Corporation	J. Paton, Borough Engineer, Town Hall, Plymouth.
" 19	Plymouth—Fire Hydrants, Cast-iron work, &c.	Corporation	F. Howarth, Water Engineer, Municipal Offices, Plymouth.
June 15	Bangkok, Siam—Railway Stores	Royal Siamese State Railways	Siamese Legation, London.

Complete List of Contracts Open —*continued.*

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDERS MAY BE OBTAINED.
	PAINTING AND PLUMBING:		
Feb. 9	London, N.W.—Paints, Oils, &c.	St. Pancras Borough Council	W. N. Blair, Borough Engineer, Town Hall, Pancras Road, N.W
" 10	London, E.C.—Oils, Colours, &c.	South Indian Rly. Co., Ltd.	Secretary, 55 Gracechurch Street, E.C.
" 12	London, N.E.—Oils, Paints, Plumbers' Work, &c.	Hackney Borough Council	N. Scorgie, Borough Engineer, Town Hall, Hackney, N.E.
" 14	Richmond, Surrey—Oil, Paints, &c.	Town Council	J. H. Brierley, Borough Surveyor, Town Hall, Richmond.
" 16	Plymouth—Tar, Creosote, Brushes, &c.	Corporation	J. Paton, Borough Surveyor, Plymouth.
" 16	Northwich—Paints, Varnishes, &c.	Weaver Trustees	J. A. Sauer, Engineer, Weaver Navigation, Northwich.
" 19	Plymouth—Lead Pipe and Pig, &c.	Corporation	F. Howarth, Water Engineer, Municipal Offices, Plymouth.
	ROADS AND CARTAGE:		
Feb. 5	Isle of Ely—Material	County Council	H. F. Simpson, County Surveyor, Northern Division, Wisbech, and R.S.W. Perkins, County Surveyor, Southern Division, Ely.
" 5	Great Yarmouth—Scavenging	Town Council	J. W. Cockrill, Surveyor, Town Hall, Great Yarmouth.
" 6	Brighouse—Paving	Highways Committee	S. S. Haywood, Borough Engineer, Municipal Offices, Brighouse.
" 7	Londonderry—Burial Ground Works	Rural District Council	M. A. Robinson, Civil Engineer, Richmond Street, Londonderry.
" 7	Chelmsford—Materials	Essex County Council	P. J. Sheldon, Chief Surveyor, County Offices, Chelmsford.
" 9	London, N.—Road Materials	Hornsey U.D.C.	E. J. Lovegrove, Engineer Southwood Lane, Highgate, N.
" 9	Bedford—Paving, &c.	Urban Sanitary Authority	Borough Surveyor, Town Hall, Bedford.
" 9	Levenshulme, Lancs—Paving, &c.	Urban District Council	J. Jepson, 8A Tiviot Dale, Stockport.
" 9	Louth, Lincs—Granite and Slag	Rural District Council	F. C. Chard, 14 Upgate, Louth.
" 9	London, N.—Road Materials, &c.	Urban District Council	E. J. Lovegrove, Engineer, Southwood Lane, Highgate, N.
" 9	London, N.W.—Cartage, Materials, &c.	St. Pancras Borough Council	W. N. Blair, Borough Engineer, Town Hall, Pancras Road, N.W.
" 10	West Ham—Materials	Town Council	Borough Engineer, Town Hall, Stratford.
" 10	London, W.—Work and Materials	Kensington Borough Council	W. C. Leete, Town Clerk, Town Hall, Kensington.
" 10	Barking, Essex—Making-up	Urban District Council	C. F. Dawson, Surveyor, Public Offices, Barking.
" 10	Middlesex—Materials for Road Widening	County Council	H. T. Wakelam, Middlesex Guildhall, Westminster, S.W.
" 11	Ormskirk, Lancs—Materials, &c.	West Lancs R.D.C.	C. Law-Green, Surveyor, Union Offices, Wigan Road, Ormskirk.
" 11	Birkenhead—Horses, Carts, Repair of Roads, &c.	Corporation	C. Brownridge, Borough Engineer, Town Hall, Birkenhead.
" 11	Bamber Bridge, Lancs—Street Works	Walton-le-Dale U.D.C.	F. E. Dixon, 49 Lune Street, Preston.
" 11	Birkenhead—Materials	Corporation	C. Brownridge, Borough Surveyor, Town Hall, Birkenhead.
" 11	Birkenhead—Flagging	Corporation	C. Brownridge, Borough Surveyor, Town Hall, Birkenhead.
" 11	Smallburgh, Norfolk—Road Material	Rural District Council	W. L. Lewis, District Surveyor, Stalham.
" 12	London, S.E.—Road Materials	Lambeth Borough Council	H. Edwards, Borough Engnr., Town Hall, Kennington Green, S.E.
" 12	London, N.E.—Materials	Hackney Borough Council	N. Scorgie, Borough Engineer, Town Hall, Hackney, N.E.
" 13	East Retford—Materials	Rural District Council	T. W. Denman, Clerk, Retford.
" 14	Ebbw Vale, Mon.—Stone	Urban District Council	T. Hughes, Clerk, Council Offices, Ebbw Vale.
" 14	Colne, Lancs—Materials	Highways & Streets Committee	T. H. Hartley, Borough Surveyor, Colne.
" 14	Richmond, Surrey—Materials	Town Council	J. H. Brierley, Borough Surveyor, Town Hall, Richmond.
" 16	Plymouth—Materials	Corporation	J. Paton, Borough Surveyor, Plymouth.
" 16	London, N.W.—Materials, &c.	Hendon U.D.C.	S. S. Grimley, Engineer, Public Offices, Hendon, N.W.
" 16	Ashford, Kent—Making-up	East Ashford R.D.C.	T. H. Wilde, Surveyor, Albemarle Road, Willesborough.
" 16	York—Private Street Works	Corporation	City Engineer, Guildhall, York.
" 17	Salisbury—Stones and Gravel	Rural District Council	F. Hodding, Clerk, Market House Chambers, Salisbury.
" 17	Long Sutton, Lincs—Granite	Urban District Council	S. S. Mossop, Clerk, Long Sutton.
" 18	Derby—Improvement Works	County Council	County Surveyor, Derby.
" 19	East Retford—Granite	Corporation	J. D. Kennedy, Borough Surveyor, East Retford.
" 21	Lewes—Materials, &c.	East Sussex County Council	F. J. Wood, County Surveyor, County Hall, Lewes.
" 24	Southall, Middlesex—Materials	Southall-Norwood U.D.C.	R. Brown, Engineer, Public Offices, Southall.
	SANITARY:		
Feb. 5	Blaydon-on-Tyne—Scavenging	Urban District Council	R. Biggins, Sanitary Inspector, Blaydon-on-Tyne.
" 5	Edinburgh—Reconstruction of Sewers	Magistrates and Council	Burgh Engineer, City Chambers, Edinburgh.
" 7	Misterton, Somerset—Sewerage Works	Chard R.D.C.	C. Combes, Engineer, Tisbury, Wilts.
" 9	London, N.—Disinfectants, &c.	Hornsey U.D.C.	E. J. Lovegrove, Engineer, Southwood Lane, Highgate, N.
" 9	London, N.W.—Disposal of Refuse, &c.	St. Pancras Borough Council	W. N. Blair, Borough Engineer, Town Hall, Pancras Road, N.W.
" 9	Manchester—House Drainage Work	Corporation	H. Prescott, Manager, House Drainage Department, Town Hall Manchester.
" 10	West Ham—Stoneware Pipes, &c	Town Council	Borough Engineer, Town Hall, Stratford.
" 11	London, S.W.—Removal of Dust, &c.	Crown Estate Paving Commrs.	Lodge, Park Square West, Regent's Park, W.
" 11	Birkenhead—Stoneware Pipes, &c.	Corporation	C. Brownridge, Borough Engineer, Town Hall, Birkenhead.
" 12	London, N.E.—Drain Pipes, &c.	Hackney Borough Council	N. Scorgie, Borough Engineer, Town Hall, Hackney, N.E.
" 13	Wolverhampton—Lime	Sewerage Committee	W. Clifford, Manager, Sewage Outfall Works, Wolverhampton.
" 14	Colne, Lancs—Pipes, &c.	Highways & Streets Committee	T. H. Hartley, Borough Surveyor, Colne.
" 14	Middleton, Lancs—Disinfectants	Corporation	C. H. Norton, Sanitary Inspector, Middleton.
" 16	Ashford, Kent—Sewer	East Ashford R.D.C.	T. H. Wilde, Surveyor, Albemarle Road, Willesborough.
" 16	London, N.W.—Removal of Refuse, &c.	Hendon U.D.C.	S. S. Grimley. Surveyor, Public Offices, Hendon, N.W.
" 17	London, E.C.—Sewer	Corporation	Engineer, Guildhall, E.C.
" 18	Clacton-on-Sea—Sewers	Urban District Council	A. R. Robinson, Surveyor, Town Hall, Clacton-on-Sea.
" 19	Hazel Grove, near Stockport—Sewers, &c.	Urban District Council	Sykes & Brady, 13 Warren Street, Stockport.
" 20	Sedgefield, Durham—Sewerage and Sewerage Disposal	Rural District Council	D. Balfour & Sons, 3 St. Nicholas Buildings, Newcastle-on-Tyne.
" 24	Southall, Middlesex—Lime, Aluminoferric, Scavenging, &c.	Urban District Council	R. Brown, Engineer, Public Offices, Southall.
" 24	London, S.W.—Reconstruction of Sewer	London County Council	Engineer's Department, County Hall, Spring Gardens, S.W.
	TIMBER:		
Feb. 9	London, N.W.—Timber and Joinery Materials	St. Pancras Borough Council	W. N. Blair, Borough Engineer, Town Hall Pancras Road, N.W.
" 10	London, W.—Timber	Kensington Borough Council	W. C. Leete, Town Clerk, Town Hall, Kensington.
" 14	Richmond, Surrey—Timber	Town Council	J. H. Brierley, Borough Surveyor, Town Hall, Richmond.

List of Competitions Open.

DATE OF DELIVERY.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	DEPOSIT REQUIRED FOR CONDITIONS, &c.	BY WHOM ADVERTISED.
Feb. 10	Winchester—Recreation Ground	£75 and £25.	10s.	W. Bailey, Town Clerk, Guildhall, Winchester.
" 11	Pengam—Isolation Hospital			F. T. James, 134 High Street, Merthyr Tydfil.
" 13	Patras, Greece—Church	£400, £160, £80.		Committee for new Church of St. Andrew, Patras, Greece.
" 16	Durban—Town Hall and Municipal Offices	£500, £300, £200.		W. H. Radford, Albion Chambers, King Street, Nottingham.
" 20	Sutton Coldfield—Town Hall	£50, £30, £20.		W. A. H. Clarry, Borough Surveyor, Council House, Sutton Coldfield.
" 28	Bridgwater—Appliances for Silt Disposal		£2 2s.	W. T. Baker, Town Clerk, King Square, Bridgwater.
" 28	Cape Town—University Buildings	£400, £200, £100.		Agent-General for the Cape of Good Hope, London.
March 2	Whitley Bay—Board Schools			J. W. Mitchell, Clerk, Whitley and Monkseaton School Board, Council Buildings, Whitley Bay, R.S.O.
" 4	Chepping Wycombe—Town Hall, &c.	£105 and £26 5s.		T. J. Rushbrooke, 77 Easton Street, Wycombe.
" 31	Hull—Extension of Town Hall	£300, £200, £100.	£5 5s.	E. Laverack, Town Clerk, Town Hall, Hull.
" 31	Castleford, Yorkshire—Public Library	£15, £10.		H. A. Broadbent, Clerk to Urban District Council, Castleford, Yorkshire.
" 31	Chelmsford—Infectious Diseases Hospital	£25, £10.	£1.	A. S. Duffield, 96 High Street, Chelmsford.
April 14	Blackpool—Technical Schools	£60, £25, £15.	£1 1s.	J. S. Brodie, Borough Surveyor, Town Hall, Blackpool.

New Companies.

Half-crown Co., Ltd.

Registered to carry on the business of dealers in burners and apparatus for incandescent gas lighting. Capital £1,000 in £1 shares. Registered office: 13, Clifford's Inn, W.C.

Bewdley Timber Co., Ltd.

Registered to acquire the business carried on at Bewdley as R. Crump & Co.; to adopt an agreement with R. Crump & A. Oddy, and to carry on the business of timber merchants and growers, sawmill proprietors, charcoal burners, &c. Capital £1,000 in £1 shares. Registered office: Hawthorn Bush, Bewdley.

United Trap Makers, Ltd.

Registered to carry on the business of manufacturers of and dealers in lead traps, bends and syphons, &c. Capital £90 in £1 shares. The first directors are A. Rosenthal and E. S. Torrey, J. Milne, J. S. Palmer, H. Fell and D. W. Deas.

Ekins & Co., Ltd.

Registered to take over the business carried on at Hertford as Ekins & Co., and to carry on the businesss of builders and builders' merchants. Capital £5,000 in £1 shares. The first directors are H. E. Ekins, J. Farley and A. Gray. Registered office: 30, Old Cross, Hertford.

Puritas Disinfectants Co., Ltd.

Registered to acquire the business of J. T. Walters, trading as the Puritas Disinfectants Co., and to manufacture and deal in disinfectants. Capital £20,000 in £1 shares. The first directors are J. T. Walters and H. C. Rought. Registered office: 13, Wellington Street, Leicester.

R. F. Sanderson & Co., Ltd.

Registered to carry on the business of timber merchants, sawmill proprietors, &c. Capital £15,000 in £1 shares. The first directors are C. Cooper, J. Edge, R. F. Sanderson and A. E. Warburton.

William Gillott, Ltd.

Registered to acquire the business of a stone merchant carried on by A. Gillott under the style of W. Gillott at Foxhill Stone Quarries, Shaw Hill, Wadsley Bridge, near Sheffield, and to carry on the business of quarrymen, stone-workers and merchants, lime burners, builders, &c. Capital £3,000 in £1 shares. Registered office: Tower Works, Globe Road, Leeds.

Current Market Prices.

FORAGE.

		£ s. d.	£ s. d.
Beans	per qr.	1 9 9	1 12 3
Clover, best	per load	4 10 0	5 0 0
Hay, best	do.	3 15 0	5 10 0
Sainfoin mixture ..	do.	3 15 0	4 5 0
Straw	do.	1 8 0	1 18 0

OILS AND PAINTS.

Castor Oil, French ..	per cwt.	1 3 11	—
Colza Oil, English ..	do.	1 4 6	—
Copperas	per ton	2 0 0	—
Lard Oil	per cwt.	2 13 0	2 14 0
Lead, white, ground, carbonate	do.	1 4 10	—
Do. red	do.	1 0 4½	—
Linseed Oil, barrels ..	do.	1 5 0	—
Petroleum, American ..	per gal.	0 0 5⅝	—
Do. Russian ..	do.	0 0 4¼	0 0 4⅝
Pitch	per barrel	0 7 0	—
Shellac, orange	per cwt.	6 3 0	—
Soda, crystals	per ton	3 2 6	3 5 0
Tallow, Home Melt ..	per cwt.	1 10 9	—
Tar, Stockholm	per barrel	1 1 6	—
Turpentine	per cwt.	2 2 0	—

METALS.

Copper, sheet, strong ..	per ton	67 0 0	—
Iron, Staffs., bar	do.	6 5 0	8 10 0
Do. Galvanised Corrugated sheet ..	do.	11 5 0	11 10 0
Lead, pig, Soft Foreign ..	do	11 10 0	11 12 6
Do. do. English common brands	do.	11 15 0	11 17 6
Lead, pig, English 3lb. per sq. ft. and upwards	per ton	13 10 0	—
Do. pipe	do.	14 0 0	—
Nails, cut clasp, 3in. to 6in.	do.	9 5 0	—
Do. floor brads	do.	9 0 0	—
Steel, Staffs., Girders and Angles	do.	5 15 0	6 5 0
Do. do. Mild bars ..	do.	6 10 0	7 0 0
Tin, Foreign	do.	129 15 0	130 5 0
Do. English ingots ..	do.	131 0 0	132 0 0
Zinc, sheets, Silesian ..	do	23 10 0	—
Do. do. Vieille Montaigne	do.	23 10 0	—
Do. Spelter	do.	20 2 6	20 7 6

TIMBER.

Soft Woods.

Fir, Dantzic and Memel	per load	1 13 0	3 0 0
Pine, Quebec, Yellow ..	do.	5 5 0	6 5 0
Do. Pitch	do.	3 0 0	3 4 0
Laths, log, Dantzic ..	per fath.	4 10 0	5 10 0
Do. Petersburg ..	do.	7 5 0	—
Deals, Archangel 2nd & 1st	per P.Std.	12 10 0	14 0 0
Do. do. 4th & 3rd	do.	10 5 0	12 15 0
Do. do. unsorted	do.	5 12 6	6 10 0
Do. Riga	do.	6 15 0	12 10 0
Do. Petersburg 1st Yellow	do.	10 10 0	11 5 0
Do. do. 2nd Yell.	do.	9 0 0	17 5 0
Do. do. White	do.	7 10 0	11 10 0
Do. Swedish	do.	5 15 0	16 15 0
Do. White Sea ..	do.	12 15 0	15 5 0
Do. Quebec Pine, 1st ..	do.	17 15 0	18 5 0
Do. do. 2nd ..	do.	12 0 0	18 5 0
Do. do. 3rd &c.	do.	8 15 0	13 15 0
Do. Canadian Spruce 1st	do.	—	11 10 0
Do. do. 3rd & 2nd	do.	9 12 6	10 5 0
Do. New Brunswick ..	do.	7 15 0	8 0 0
Battens, all kinds ..	do.	6 10 0	12 5 0
Flooring Boards 1in. prepared, 1st	per square	0 10 9	0 12 9
Do. 2nd	do	0 9 3	0 10 6
Do. 3rd &c.	do	0 8 3	0 9 6

Hard Woods.

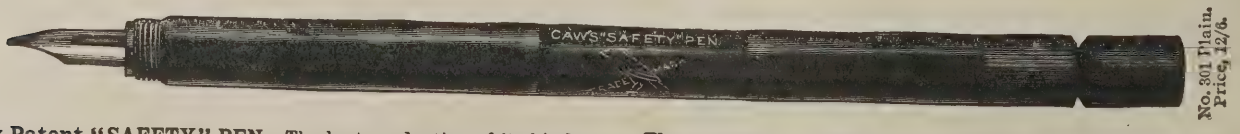
Ash, Quebec	per load	3 12 6	—
Birch, Quebec	do.	3 12 6	3 17 6
Box, Turkey	per ton	15 0 0	20 0 0
Cedar, Cuba	per ft. sup.	0 0 3⅜	0 0 5
Do. Honduras ..	do.	0 0 4 3/16	—
Do. Tobasco	do.	0 0 4 3/16	—
Elm, Quebec	per load	4 0 0	5 2 6
Mahogany, Average Price for Cargo, Honduras ..	per ft. sup.	0 0 5 9/16	—
Do. African ..	do.	0 0 4 1/16	—
Do. St. Domingo	do.	0 0 3¼	0 0 6
Do. Tobasco ..	do.	0 0 4 3/16	—
Do. Cuba ..	do.	0 0 4¼	0 0 8 7/16
Oak, Dantzic and Memel	per load	3 5 0	3 15 0
Do. Quebec	do.	6 5 0	10 0 0
Teak, Rangoon, planks ..	do.	16 0 0	17 10 0
Wainscot, Riga (Baulk)	do.	3 15 0	5 15 0
Walnut, Odessa Crown	do.	3 15 0	5 15 0
Do. American ..	per ft. cube	0 2 0	—





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Coming Events.

Wednesday, Feb. 4.

Ruskin Society of Birmingham.—Sir Henry H. Howorth on 'John Ruskin." Mr. A. Hunter Crawford on "The Building of a House"—II. 7.45 p.m.

Society of Arts.—Mr. W. L. H. Hamilton on "Methods of Mosaic Construction," 8 p.m.

Institution of Civil Engineers.—Students' visit to the Electrical Standards Laboratory of the Board of Trade, 8 Richmond Terrace, Whitehall, S.W.

Northern Architectural Association.—Mr. Allan Greenwell, F.G.S., A.M.I.C.E., on "Bitumen: its application in Architecture and Engineering," 7.30 p.m.

Archæological Association.—Meeting at 8 p.m.

Royal Archæological Institution.—Dr. Alfred C. Fryer on "Fonts with Representations of the Holy Eucharist and Baptism," 3 p.m.

Institute of Sanitary Engineers. — Special Meeting of Council at 7 p.m.

Thursday, Feb. 5.

Society of Antiquaries of London.—Meeting at 8.30 p.m.

Royal Society.—Ordinary meeting at 4.30 p.m.

Chemical Society.—Meeting at 8 p.m.

Architectural Association of Ireland.—Technical Demonstration at Messrs. T. & C. Martin, Ltd., 82, North Wall, Dublin.

Friday, Feb. 6.

Glasgow Technical College Architectural Craftsmen's Society. — Mr. David Skinner on "Construction of Timber Staircases," 8 p.m.

Architectural Association.—Prof. G. Baldwin Brown, M.A., on "What is the real value of Greek Work to the Modern Artist?" 7.30 p.m.

Royal Institution.—Sir Herbert Maxwell on "George Romney and his Works," 9 p.m.

Institution of Junior Engineers. — Mr. W. Garnet Wernham on "Calorimetry," 8 p.m.

Saturday, Feb. 7.

Glasgow and West of Scotland Technical College Architectural Craftsmen's Society.—Mr. F. J. Rowan, A.M.I.C.E., M.I.E.S., on "The Science of Steam Generation," 7.30 p.m.

British Institute of Certified Carpenters. —Visit to the London Wall Estate Buildings at 3 p.m., by permission of Mr. H. Phillips Fletcher. Meeting at Carpenters' Hall at 6 p.m.

Sanitary Inspectors' Association.—Sir J. Crichton Browne presides at Annual Dinner at Holborn Restaurant at 6.30 p.m.

Monday, Feb. 9.

Ulster Society of Architects' Designing and Sketching Club.—Mr. W. J. W. Roonie, M.S.A., on "Some Notes on Planning," 8 p.m.

Royal Philosophical Society of Glasgow.—Mr. Alexander Fisher on "Enamelling and Silversmithing," 8 p.m.

Surveyors' Institution—Ordinary general meeting at 8 p.m.

Bristol Society of Architects.—Mr. E. Guy Dawber, A.R.I.B.A., on "The Buildings of the Cotswolds," 8 p.m.

Tuesday, Feb. 10.

Manchester Society of Architects (Students' Meeting).—Mr. Claude Paterson on "Italian Renaissance."

Wednesday Feb. 11.

Architectural Association. — Mr. Edward Spencer on "Gold and Silversmith's Work," 7.30 p.m.

Edinburgh Architectural Association (Associates' Section).—Mr. J. A. Arnot on "Notes on the Treatment of Angle Sites," 8 p.m.

Sanitary Institute. — Discussion on "The Present Shortage of Water available for Supply," to be opened by Mr. W. Whitaker, B.A., F.R.S., F.G.S., A.M.I.C.E., 8 p.m.

Institution of Sanitary Engineers.—Meetings of Examination and Literary Committee at 4 p.m., of General Purposes and Finance Committee at 4 p.m. and Election Committee at 5.15 p.m. Mr. J. Freebairn Stow on "The Biological Treatment of Sewage: Some Facts and Figures compiled from Three Years' Practical Working of Bacteria Beds," 7 p.m.

Vacant Appointments.

[The dates given are those on which the application is to be sent in, and the name given is that of the person to apply to. In nearly every case the application has to be made on a special form, which can be obtained from the officials mentioned.]

February 7.

Eastleigh and Bishopstoke U.D.C.—Surveyor, £250. H. White, clerk.

Manchester Corporation Tramways.—Assistant electrical engineer, £200. W. H. Talbot, clerk.

Holme Culham, Cumberland U.D.C.—Engineer, salary not stated. J. H. Gibson, clerk.

Oswestry Corporation.—Waterworks inspector, 35s. per week. S. P. Parry, town clerk.

February 10.

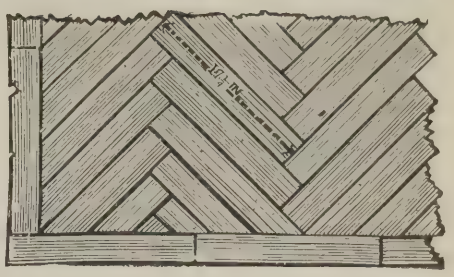
London Corporation.—Inspector of sewers, £200. Town clerk.

At once.

Cunard Steamship Co.—Assistant superintendent engineer. Particulars from Secretary, 8, Water Street, Liverpool.

Dublin Commissioners of Public Works.—Assistant surveyor, £200, £10 to £300. H. Williams, secretary.

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Tenders.

Information from accredited sources should be sent to "The Editor" at latest by noon on Monday if intended for publication in the following Wednesday's issue. Results of Tenders cannot be accepted unless they contain the name of the Architect or Surveyor for the work.

Addressed postcards on which lists of tenders may be stated will be sent post free on application to the Manager, BUILDERS' JOURNAL, 9, *East Harding Street, E.C.*

Aspatria (Cumberland).—For the execution of the following works, for the Aspatria, Silloth and District Joint Water Board Co., namely:—(Contract No. 4) supply and delivery of about 22,000yds. of socket and spigot pipes, 9in. in diameter, and other castings; (5) supply of, delivery, and fixing an elevated cast-iron tank to hold about 20,000 gals. between Aspatria and Westnewton, also for a break-pressure valve to be fixed in same, together with the supply and delivery of sluice and air valves, hydrants, and other fittings; (6) excavation of trenches and laying and jointing of about 22,000yds. of cast-iron pipes from a point near Fletchertown to a point in Eden Street, Silloth, viâ Aspatria, together with masonry in connection with the break-pressure tank. Messrs. Pickering & Crompton, engineers, 11 Lowther Street, Whitehaven:—

Contract No. 4.

J. Jackson & Son, Penrith	£11,190 0 0
R. Maclaren & Co., Eglinton, Glasgow	11,106 11 6
J. Abbot & Co., Gateshead-on-Tyne	11,067 8 6
R. Laidlaw & Son, Glasgow	10,936 9 3
D. M. Stevenson, Glasgow	10,883 10 0
Macfarlane, Strang & Co., Glasgow	10 650 3 6
D. Y. Stewart & Co., Glasgow	10,332 5 6
D. Thompson & Sons, Carlisle	10,289 8 6
Staveley Coal and Iron Co., Chesterfield	10,273 12 6
Cochrane & Co., Ltd.,* Middlesbrough-on-Tees	9,608 3 9

Contract No. 5.

Stevenson & Co., London	£679 4 0
J. Jackson & Son	597 15 0
Glenfield & Kennedy, Kilmarnock	562 2 3
Sandholme Iron Co., Todmorden	537 15 8
J. Abbot & Co.	516 14 6
Newton, Chambers & Co., Sheffield	485 8 2
Pratchett Brothers, Carlisle	484 2 3
J. Blakeborough & Sons,* Brighouse	448 11 6

Contract No. 6.

J. Moffat, Manchester	£5,904 5 3
D. Thompson & Sons	4,656 14 5
T. C. Starkey, Hull	4,546 17 2
J. Laigh, Carlisle	3,437 3 8
W. Green, Belfast	3,395 16 9
T. Crawford & Son, Strathaven	3,308 9 2
Jowell Brothers, Scale Hill, Loweswater	3,276 3 8
J. Jackson & Son	3,138 8 0
J. H. Vickers, Nottingham	2,523 14 11
J. Taylor,* Mason Street, Workington	2,443 17 3

* Accepted.

Haslemere (Surrey).—For the erection of new house at St. George's Wood, Haslemere. Messrs. Read & MacDonald, architects:—

F. Milton	£1,422 0 0
Haslemere Builders, Ltd.	1,354 15 0
Chapman & Lowry	1,327 17 6

London, N.—For alterations and repairs at Christ's College, for the Finchley Urban District Council:—

C. & J. Claridge, Finchley	£2,500
J. Peatree, London	2,129
E. Boxall, Tottenham	1,923
W. Horvie, Highgate	1,920
Hardy Brothers, Palmer's Green	1,865
B. E. Nightingale, London	1,850
C. H. Barsell, Finchley	1,763
Parkinson & Son, London	1,738
Vigor & Co., Poplar	1,738
Patman & Fotheringham, London	1,700
Ambrose & Co., Highgate	1,679
W. Tout, Hendon	1,520
J. Stewart, Tottenham	1,505
B. Finch & Co., Ltd., Lambeth	1,498
H. Knight & Son, Tottenham	1,494
Borrow & Co., Wood Green	1,390
F. W. Harris, Barnsbury	1,375
C. R. Price, London	1,338
H. C. Cooper, Newington	1,295
Spiers & Son, London	1,274
Wilcox & Son, Finchley	1,195
W. Dudley, New Southgate	1,125
W. T. Batchelor, Finchley	1,119

[Referred to Committee.]

Llantwit-Fardre (Wales).—For the erection of a villa residence on the Llest Estate, Llantwit-Fardre, for Mr. S. Y. Knight, of Llanishen. Messrs. Arthur Ll. Thomas & W. E. Cule, architects, &c., Town Hall Chambers, Pontypridd:—

C. H. Cooksley, Miskin, Pontyclun	£1,290
Morris & Thomas, Creigiau and Pontypridd	1,086
W. Tucker & Son, Llantwit-Fardre	1,053
Price Brothers,* Cardiff	1,050

* Accepted.

Killinghall (Knaresborough).—For the execution of the whole of the necessary works in connection with a scheme of main sewerage at Killinghall, for the Knaresborough Rural District Council. Mr. R. Annakin, surveyor, 44 Station Parade, Harrogate:—

J. Dickinson, Starbeck	£1,790 0 0
T. Godfrey, Harrogate	1,640 0 0
G. Buckley, Harrogate	1,476 0 0
G. Parsons, Harrogate	1,455 0 0
J. Thompson, Newcastle	1,452 0 0
Exors. of late W. Annakin, Harrogate	1,438 0 0
J. Frost, Harrogate	1,425 0 0
B. Oxley, Harrogate	1,239 6 0
J. H. Matthews, Harrogate	1,110 0 0
F. U. Simpson,* Burton Leonard, viâ Leeds	1,036 3 7

* Accepted.

London, W.—For paving works in Ashworth Road and Grantully Road, for the Paddington Borough Council. Mr. E. B. Newton, borough surveyor:—

Ashworth Road.

J. Meston, 60 St. Mark's Road, North Kensington	£694 13 0
Lawrence & Thacker,† London, S.W.	632 0 10
B. Nowell & Co., Kensington	598 11 3
W. Pearce,† David's Road, Forest Hill, S.E.	606 13 6
W. Neave & Son, Kensal Rise	585 0 0
E. Parry & Co., Putney	593 14 0
T. Adams, Wood Green, N.	575 16 6
J. Mowlem & Co., Grosvenor Wharf, S.W.	578 0 0
D. R. Patterson, Camden Town	536 17 11
R. Ballard, Child's Hill	467 0 0
H. Boyer,* Terminus Wharf, Paddington	399 0 0

Grantully Road.

J. Meston	£2,209 7 6
Lawrence & Thacker‡	1,889 12 8
B. Nowell & Co.	1,805 17 7
W. Pearce†	1,772 10 6
W. Neave & Son*	1,768 0 0
E. Parry & Co.	1,749 16 0
T. Adams	1,731 15 2
J. Mowlem & Co.	1,728 0 0
D. R. Paterson	1,695 8 0
H. Boyer*	1,449 0 0
R. Ballard	1,397 0 0

* Accepted. † Subject to existing foundations of carriageway, channel, kerb and footway being accepted as satisfactory, and that no hard core will be required excepting for the purpose of making good unsound patches, but inclusive of formation to receive gravel and other paving. ‡ Apparently, judging by the detailed bill of quantities, this figure is a clerical error, and should have been £623 os. 10d. Four minutes late.

Oxford.—Accepted for additions and alterations at "Summer Fields," Oxford, for the Rev. C E. Williams, D.D. Mr. Herbert Quinton, architect and surveyor, 22 George Street, Oxford. Quantities by the architect:—

Money & Wild:—

Dining hall, &c.	£999 17
Servants' hall, &c.	270 6
Corridor, &c.	180 0
	£1,450 3

Sevenoaks.—For the erection of a residence in Hitchen Hatch Lane, for Mr. G. S. Pinchin. Mr. W. A. Finch, architect, 76 Finsbury Pavement, E.C.:—

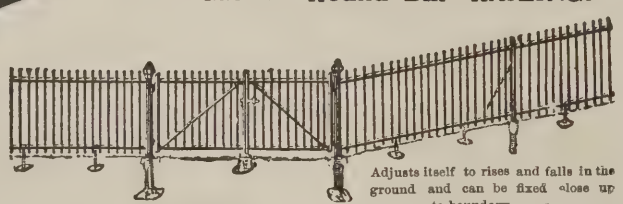
Patman and Fotheringham	£4,200
Barrett & Power*	3,875
T. L. Fearon†	3,438

* Provisionally accepted. † Withdrawn.

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An Architectural Causerie.

Covered Pavements and Arcades.

WHEN the great block of buildings at the foot of the Haymarket was rebuilt a few years ago one feature disappeared from London street architecture which it could ill spare; this was the covered walk obtained by carrying the wall out to the full width of the pavement and supporting it upon an arcade. The new "Her Majesty's" and the Carlton Hotel have no such characteristic; the block is a fine one, but this decidedly Italian feature is gone and there seems to be little probability of its adoption in the new streets of our day. Here and there in the same quarter it may still be seen; the "Opera Colonnade" is there; and the foot passenger passes under the portico of the Haymarket Theatre as he walks up that celebrated street; it exists also in one or two of the little side streets. Regent Street—that is, the "Quadrant" part only—had covered pavements when first designed, but on a different principle; the wall was not carried out, though the County Fire Office being so constructed has given rise to the idea that the rest was so treated, but the structure over the pavement was built for the purpose of covering it and removed after it had stood thirty-six years. Was it right to remove it, and are covered pavements advisable in London? The question is one for public opinion and public authorities; to the architect is presents no difficulties whatever. For centuries the use of arcades has been relied upon by Continental architects to "break-up" their street designs and give light and shade, which it does most admirably: in the new streets of towns in Italy, however, it has been discarded, and the result is deplorable—wide dusty roads bordered with vast barrack-like blocks and almost destitute of any architectural character whatever. In France, though not so general as in Italy, it is often seen, and no thoroughfare in Europe is better known to Englishmen than the Rue de Rivoli in Paris, which is arcaded from end; to end; commenced by Napoleon I., it was finished by Napoleon III. It may be noted that householders who built, or rebuilt, in this style were granted a remission of rates for twenty years. Popular custom in this country has long applied the word "arcade" to a covered passage, instead of a row of arches, its proper meaning; abroad such structures are, more correctly, styled galleries or passages. A superb example is to be seen in Brussels, the Galerie du Roi, and its continuation the Galerie de la Reine, the two together being 700ft. long, covered with glass, 60ft. high, and lined on either hand with shops, cafés, and even theatres. The central part of Paris is honeycombed with passages forming short cuts from street to street; some of these are celebrated, like the Passage des Panoramas with its endless booksellers' shops; some, to a newcomer, seem to branch out and ramble interminably; all are interesting, but Parisians say that these places are losing their popularity—even the arcades of the Palais Royal are less frequented of late years. Be this as it may, none can deny that such arrangements are cheerful and convenient in wet or cold weather. An exceedingly fine work is the Victor Emmanuel Gallery at Milan, the gift of the people of the city to the king whose name it bears. It is on a noble scale, and splendidly decorated with mosaics. In London we have but few examples of these galleries: the pretty little avenue of flower stalls and fruiterers in Covent Garden is pleasant and familiar to old Londoners; the Lowther Arcade, where Albert Smith used to "buy his Swiss toys the day he returned from Switzerland," is now being demolished; the Burlington Arcade remains, it is well proportioned, with small classical enrichments and bright with shops; a few examples, but very unpretending, are to be found in our provincial towns. There seems to be no good reason for banishing arcaded pavements and galleries from our new designs in the rebuilding of London. The possibility of "making the shops dark" is removed by our many new and brilliant illuminants, and in Paris a clever expedient has been resorted to which is worth the attention of the planners of new streets; the building is carried out over the pavement and arcaded whilst the shop fronts which break the *inner* wall are entirely of glass, with the usual iron construction of the day. Any expedient that tends to break up the vast fronts of modern structures is a thing to be welcomed, and a system of arcades is one of them, besides having other advantages.



CORHAMPTON CHURCH, HANTS: WEST END.

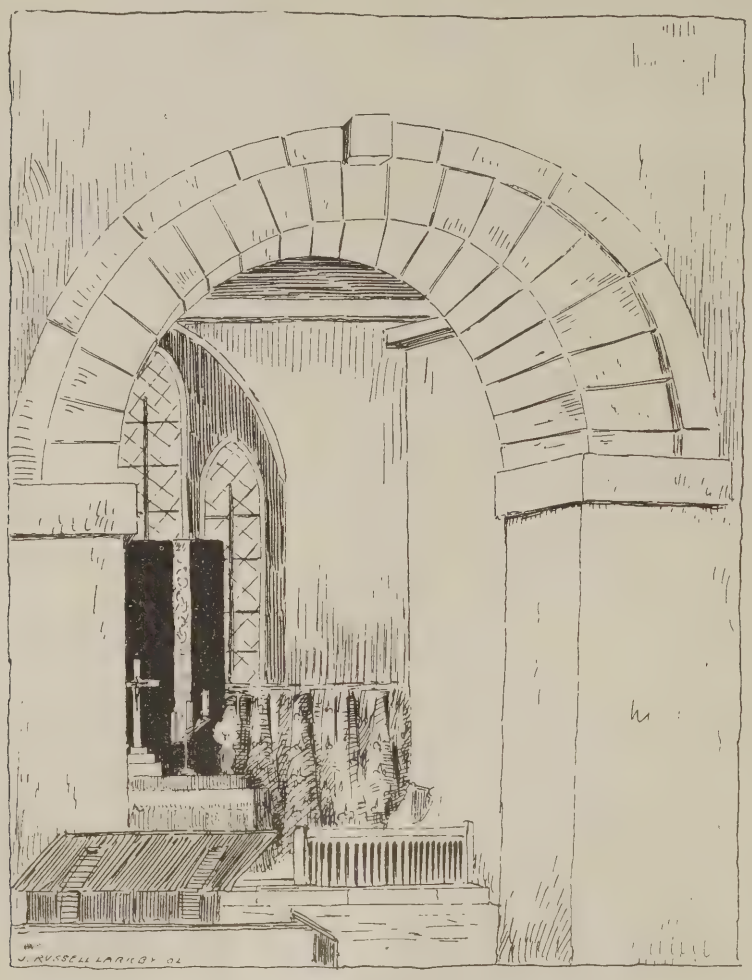


FIG. 1.—CHANCEL ARCH, CORHAMPTON CHURCH.

THE SAXON CHURCH OF CORHAMPTON, HANTS.

By J. RUSSELL LARKBY.

AT Corhampton we have, with a few exceptions, the complete shell of a Saxon building, and by omitting the modern lights vestry and the fifteenth-century font from the annexed ground plan an excellent idea of a small Saxon church is presented to the eye. The chancel, although comparatively modern in its elevation, seems to preserve the measurements of the original building, and to the west of the spot lettered A all the main walls are Saxon. Thus it will be seen that Corhampton Church is one of the few ecclesiastical buildings which have come down practically untouched by the great periods of activity in the building art during the twelfth, thirteenth and fifteenth centuries. That it escaped the latter period is most remarkable, and the more so, standing as it does in the royal diocese of Winchester, the great mother church, who above all others set her children an example of architectural development. Local tradition ascribes the foundation of Corhampton Church to the Saintly Wilfred, and although local tradition is not always archæology, yet here there may be some truth in the story. S. Wilfred, the builder, missionary and fisherman, altogether one of the finest figures in the Ecclesiastical History, after having fled from his see before the wrath of Egfrid, found himself, after much wandering, back in Britain, where, says Bede, "he could not be restrained from preaching the Gospel"; at length be arrived in the country of the south Saxons, where all the people were "strangers to the cause and faith of God." At the same time, however, there was at Borham, a certain Scotch monk named Dicul, who with a few brethren maintained the monastic life. They seem to have lived entirely out of touch with the people, and, owing to this fact, S. Wilfred found a wide field for his missionary energy, ultimately founding a monastery at Selsey, on land granted by the king for that purpose. Although the house founded by S. Wilfred was doubtless devoted to the monastic rule, it must not be supposed that, like the house of Dicul, at Borham, the brothers lived entirely apart from the people. S. Wilfred was above everything else a missionary, and "could not be restrained from preaching the gospel; it is therefore, by no means improbable conjecture to picture him journeying over the wild and uncultivated country—perhaps on a journey to Winchester—and preaching at the village of Corhampton, at last moving them to erect a temple for the exercise of the Faith. The date of S. Wilfred's sojourn in the country of the south Saxons is said by Bede to be 681, and as this is only one year later than the date Bede mentions of the first stone church at Jarrow, there is really no apparent reason to doubt that a church existed at Corhampton at that date; at the same time we must not allow this mention of a stone church (evidently, from the mere mention of it, an event of some importance) to lead us into accepting the tradition that S. Wilfred actually founded the church at Corhampton, and dating the present structure from his time. The church built by him, if we accept the theory at all, was much more probably of wood, to which the present building is a successor. The present edifice may be safely referred to an early period in stone building in this country. A slight comparison with other Saxon churches will suffice to show this. At Sompting, Barnack, Wickham, St. Mary Bishop's Hill, Junior York, there is Saxon work of an advanced type suggesting a practised hand and eye in the carving of detail. With the exception of York, all the other churches mentioned are considerably removed from any influence such as that which Winchester might have had on Corhampton, and therefore the presence of an advanced type of Saxon work evidently suggests a late period in the style. At Corhampton there is none of this detail; the chancel arch is strikingly plain, the exterior almost entirely lacks distinctive features, and the only original window left is quite the rudest possible contrivance to admit light. These various features will be dealt with in due order, and are only mentioned here to show that although so close to the great mother church of the diocese, the architecture is of a type considerably ruder than many well-known Saxon churches.

In the eighteenth century, the chancel, if not actually extended on plan, was altogether altered in elevational appearance. The work was carried out in brick, the most unsatisfactory material employed at the most unfortunate time. This portion of the church is undoubtedly bad from an architectural standpoint, but being mercifully covered with ivy the mediocrity of the work is not very prominent. It has been suggested that the original eastern termination was apsidal, and in view of a possible forthcoming restoration the erection of a modern apse has been mooted as bringing the chancel more in accordance with its supposed original plan. The architect in his report states that after having dug an experimental trench at the east end, he was entirely unsuccessful in finding any evidence of an apse; to some this may seem the logical result of the enquiry. If any documentary proof can be produced for the existence of an apse, then of course the objection is reduced, but it still remains, inasmuch as we have no conception of the form it took, and to erect an apse copied from other buildings is not true restoration, but rather experimental architecture. Apsidal endings are rare in small village churches, even during the Norman period, and they must have been still rarer during Saxon times. It seems that the present chancel preserves something of the original ground plan, and this, moreover, agrees with the

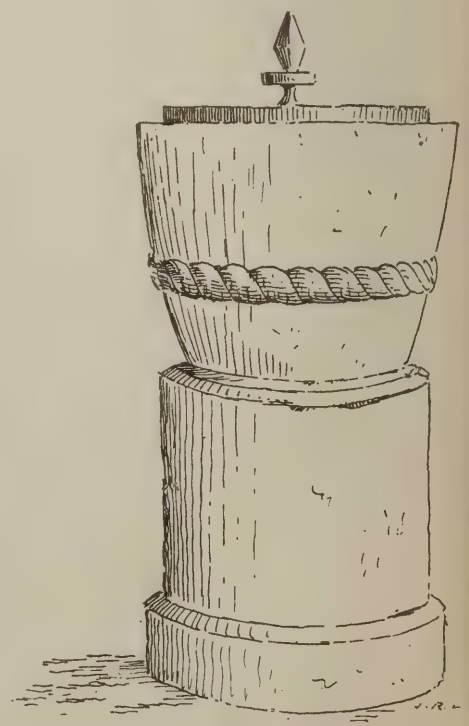


FIG. 2.—SAXON FONT, CORHAMPTON.

measurements of the complete Saxon chancel at Boarhunt. The two churches, Corhampton and Boarhunt, show some remarkable affinities both in arrangement and ground plan, though the latter is of a more recent type in the treatment of its Saxon features.

The chancel arch (Fig. 1) is somewhat similar to the arch at Boarhunt, but the imposts of the latter are ornamented with a few irregular mouldings. At Corhampton they are merely large blocks of stone projecting from the jamb and entirely without ornament. There is also a remarkable similarity between the chancel arch of the Saxon chapel at Deerhurst and the example now under consideration. The resemblance is so striking that one instinctively classes them as belonging to about the same period. A feature to be noticed at Corhampton is the strutting of the jambs towards the base. Some of this, of course, may be intentional, yet I cannot but think that it is partially caused by undue strain. The church, it should be remembered, is built on the summit of an artificial mound, which has probably allowed a slight settlement in the foundations. It is certainly an irregularity which calls for some investigation.

The font (Fig. 2) stands at the west end of the nave, and is apparently of the same age as the other early features of the church; the tooling on the bowl is in fine lines, and so utterly unlike Saxon work that it cannot be looked upon as the original surface. It stands on a fifteenth-century pedestal, and it was probably reworked at that time. The rough cable moulding still presents its original surface.

It is now time to turn to the elevational features of the building, and of these the illustration on p. 423 shows the western elevation. The character of the masonry at once reveals the fact thatthis is the ancient western termination of the structure; the quoins are in typical long and short work, but much weathered, owing to the somewhat porous nature of the material employed. In the centre and from the base rises a pilaster strip, at the summit of which a horizontal string forms the bases of two extremely primitive Saxon windows, now blocked up with snapped flints. These interesting windows are shown open in Parker's "Introduction." Immediately under the horizontal strip are the remains of a small opening, late in date, and of uncertain use. I would here ask the reader to carefully compare this elevation with any other Saxon building, as I think such a comparison will convince him that the work is of a very primitive type. At Barnack, Earls Barton, Boarhunt Sompting, &c., there is at least some little attempt at ornament in the window heads; at Corhampton there is no vestige of ornament in the treatment of the lights; they even lack the triangular form associated with Saxon work. In the whole church there are just four stones with Saxon mouldings, the two capitals and bases of the north door, and these, strictly speaking, are scratchings rather than mouldings.

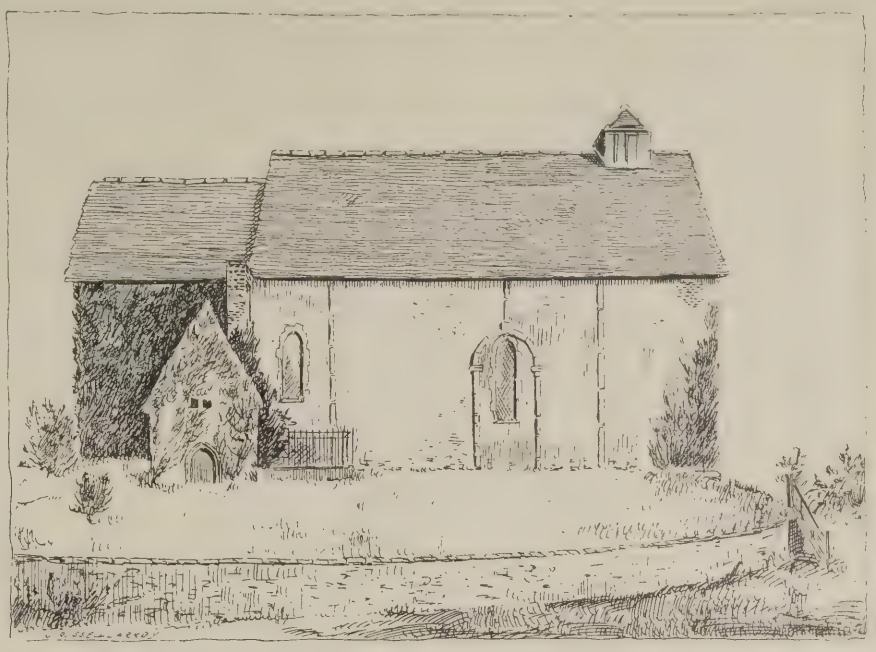


FIG. 4.—NORTH WALL OF CORHAMPTON CHURCH.

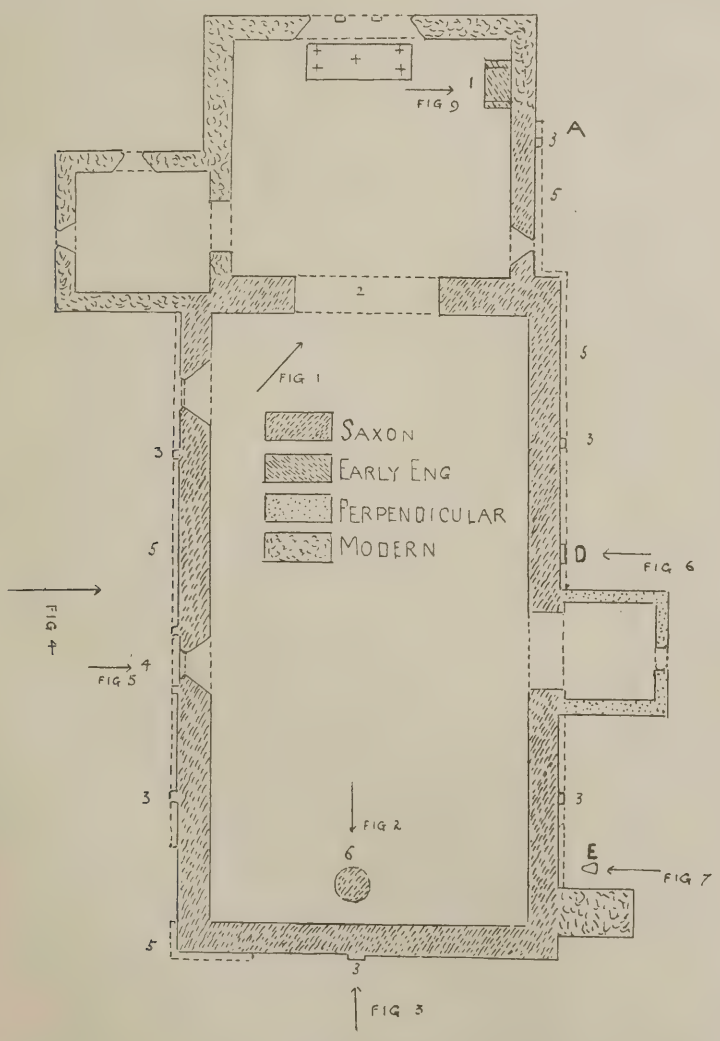


FIG. 3.—PLAN, CORHAMPTON CHURCH.

1. Early English Sedile. 2. Saxon Chancel Arch. 3. Saxon Pilaster Strips. 4. Saxon South Door. 5. Footing Courses. 6. Saxon Font.

On the exterior of the north wall (Fig. 4) is the most interesting evidence of Saxon work; the chief interest centres on the Saxon doorway with its simple capitals and bases drawn on a larger scale at Fig. 5. From the summit of the door, which is a considerable distance from the ground, a small pilaster strip runs up and joins the Saxon eaves course; the other strips are also built in a similar manner; these features are of interest, as they illustrate the height of the walls as left by the Saxon builders. Considering their length, their height of 18ft. is considerable. No evidence of Saxon work can be seen past the eastern pilaster on Fig. 4; the window near it and under the door are modern insertions, doing their best to spoil the primitive appearance of the structure. The Saxon work reappears on the south, at the spot marked A on plan, and continues practically without interruption to the west wall of the nave already dealt with. Further west, and marked D, is the Saxon sundial (Fig. 6), of Quarr Abbey stone, the material used in the porch and pilaster strips*; it is much weathered, but there can be no doubt as to its Saxon origin. The ornament is rough, though not rougher than much Norman work.

Over the porch a short strip of masonry projects from the wall, evidently meant to correspond with that on the north. It therefore

* The Quarr Abbey stone was obtained from Quarr Abbey, Isle of Wight, and has been extensively used in the district. It is a kind of conglomerate consisting of fragments of Eocene shells, and thus allowing some considerable opportunities of waste, by the percolation of water.



FIG. 5.—DETAILS OF SAXON DOOR, CORHAMPTON CHURCH.

marks the position of a second Saxon door, the semicircular head of which can be traced by a patch of stucco. This original door was discarded in the fifteenth century, when the present extremely plain porch was erected; it would be a piece of real restoration to again expose the Saxon door, retaining, of course, the later porch.

Some few remaining details may be here mentioned. At the spot marked E on the plan lies a large gargoyle (Fig. 7). It is a grotesque representation of the sin of gluttony; the widely spread mouth, the corpulent body, and the rolls of fat, illustrating a mediæval abuse which never failed to incur the pointed remarks of the ecclesiastical satirist. The object was found in "Chapel Field," some years ago, on the reputed site of a chapel; but beyond this fragment there is no other evidence of its existence.

Under the fine old yew trees in the churchyard is a slab of non-local stone, marked with five crosses botoneé (Fig. 8), after the manner of altar-stones. Its length certainly suits it for use in a small church. The dotted line shows the tapering towards the foot, and from this it is generally regarded as a tomb-cover. Tomb-covers, however, were not usually thus marked unless they were intended for altar slabs. As the slab tapers on one side only, it seems possible that the mutilation is a recent one.

On the south-west of the chancel is the stone sedile illustrated in Fig. 9. It dates from the middle of the thirteenth century, and is sufficiently uncommon to be of interest. A somewhat similar example exists at Lenham Church, Kent.

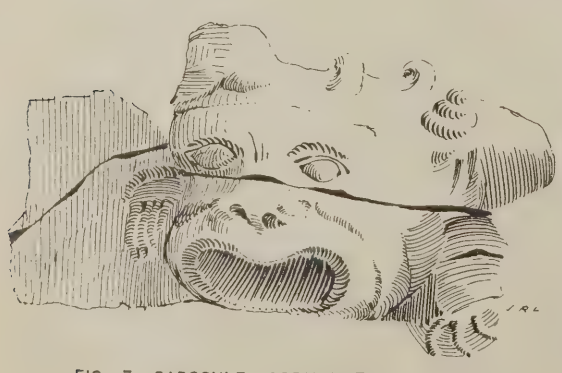


FIG. 7.—GARGOYLE, CORHAMPTON CHURCH.

Again, referring to the question of restoration, the following is a summary of the suggested alterations:—

(1) The addition of an eastern apse.

(2) Removal of the porch and the erection of a new one.

(3) Thorough overhauling of walls and roofs.

No. 1 has already received attention.

With regard to No. 2, the architect consulted proposes to destroy it and erect another of a more ornate character. It is difficult to understand why the present porch should not be allowed to stand, if a porch is an absolute necessity. Of course it is not beautiful, and the only good point in its favour is that, to a certain extent, it harmonizes with the quiet colouring of the adjoining masonry, which is emphatically what a new porch would *not* do. If, therefore, a porch is necessary at all, it is equally necessary that the present one should remain, provided its stability is ascertained.

With No. 3 one, of course, entirely agrees, but on the understanding that the examination and repairs of the roof are carried out under constant supervision. There is a case on record where the workmen were left to their own devices in overhauling a roof, the only tangible result of their labours being a general conflagration.

Some further points might be attended to with advantage, such as—

(1) The clearing away of the insinuating ivy on the west wall, as it hides much of the

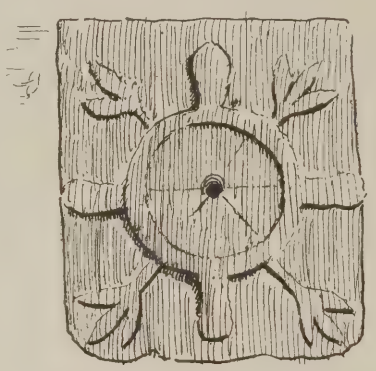


FIG. 6.—SUNDIAL, CORHAMPTON.

long and short work of the quoins. This is the only church in the district where this interesting type of masonry can be well seen.

(2) The opening of the Saxon windows in the west wall if it is possible to glaze them without damage to the stonework.

(3) The removal of the plaster over the porch in order to show the remains of the Saxon south door.

When the time of restoration comes all one would ask for here is simplicity and a stern refusal of anything in the nature of mere experimental architecture. Experimental or fancy architecture is bad at all times, but on such a church as Corhampton it would be doubly unwelcome.

Excavations in Italy.—Excavations will shortly be commenced in a marsh near Sannazzaro, on the River Sarno, in the vicinity of Pompeii, because it has been ascertained that a very ancient city and necropolis were buried underneath during the eruption of Vesuvius several centuries before the destruction of Pompeii. A collection already exists in the museum at Naples of great historic value, consisting of indigenous vases and ornamental objects dating from the eighth and ninth centuries before Christ. The excavations are expected to lead to other important discoveries.

METHODS OF MOSAIC CONSTRUCTION.*

By W. L. H. HAMILTON.

IT is now more than sixty years ago since the revival in this country of mosaic as an architectural adjunct may be said to have begun. In 1840 Mr. Blashfield endeavoured to produce decorative pavements, and in this endeavour he was assisted by Mr. Minton and Messrs. Maw & Co., who succeeded in making excellent material for that purpose. Following Mr. Blashfield (and to a certain extent working in co-operation with him) came Sir Digby Wyatt, who in 1848 published a work on the subject, and gave much practical assistance to the manufacturers who were engaged in producing the tesseræ. Their efforts appear to have been mainly concentrated on the production of pavements, geometrical in design, and made of such materials as asphalt, coloured cement and compressed china-clay. The results obtained were so satisfactory that on the announcement of the intended exhibition of 1862 Messrs. Maw & Co. decided to move a step in advance of what had hitherto been done, and to produce a pictorial pavement in several colours. They therefore commissioned Sir Digby Wyatt to design a pavement of that character for them, which they executed in tesseræ of nearly a hundred different tints made by themselves; and, as Sir Digby Wyatt states, "this was the first practical effort to revive pictorial mosaic amongst us."

Such was the position of the mosaic art in England in 1862. It shows that a certain interest in the art had been created, and this interest was stimulated by Sir Digby Wyatt, who in that year read a valuable and most interesting paper before the Royal Institute of British Architects on "Pictorial Mosaics as an Architectural Embellishment," pealing with the subject (as he himself states) from the point of view "from which we may best realize what architects have to learn and to do in order to effect a practical revival of the art at the present day," and with this aim in view he gave the main historical phases of pictorial mosaic, and dwelt upon the various scopes and difficulties of the art in its production and application.

Many artists and architects now gave serious attention to the revival of the art. The improvement in public taste, aided by an increased feeling for colour and decoration, gave encouragement to those who were interested in the revival, and it was not long before several eminent firms in this country succeeded in producing mosaics in enamel. The names of Messrs. Simpson & Sons, Messrs. Rust & Co., and Messrs. Harland, Fisher & Co., occur to me, as some of their full-length figures are to be seen in the principal hall of the South Kensington Museum. But not until some years later were any important enamel mosaics executed in this country.

In Italy the traditions of the workers in mosaic had been handed down through centuries, and although the art had fallen low it had never altogether died out. About the year 1860 a poor glassblower of Murano, named Lorenzo Radi, with the love of his art strong within him, made efforts to improve the manufacture of enamels, and especially of gold mosaic, and in his necessity he applied to a Venetian lawyer, Dr. Salviati, who found the means to enable him to continue his efforts in the production of the smalti (or enamel), by means of which Radi was endeavouring to revive the mosaic art in Venice. In a small way these efforts were successful, but for want of means and prestige they would have resulted in failure had not an artist of high merit and great social position extended to them a helping

* A paper read before the Society of Arts on Wednesday, February 4th.

hand. I refer to the late Sir Austin Henry Layard—a man who was not only an artist in the highest and broadest sense of the term, but who was also a distinguished diplomatist and archæologist. From the moment he extended his protection to the revived industry the success of that industry was assured. He, together with a few other English gentlemen, provided the necessary capital. The business which had been established by Radi and Salviati became their property, and was speedily merged into the concern which they then formed under the title of the "Venice and Murano Glass and Mosaic Company."

The first important commissions obtained by the company were the decoration of the Wolsey Chapel at Windsor and that of the Albert Memorial in Kensington Gardens. The general designs for both works were by Sir Gilbert Scott, and were carried out under his directions from the cartoons of Mr. John Clayton, of Messrs. Clayton & Bell. About this time also were executed for the South Kensington Museum several full-length figures from the designs of the late Lord Leighton, Sir Edward Poynter, P.R.A., Mr. Val Prinsep, R.A., and other distinguished artists. In Westminster Abbey the "Last Supper," over the communion table, was executed from the design by Mr. Clayton; and in St. Paul's Cathedral two of the large spandrels under the great dome were covered with mosaics from cartoons by Mr. George Frederick Watts and the late Alfred Stevens.

From that time to the present day much excellent work has been done in various parts of the United Kingdom, in the Colonies, and in America by several well-known English firms of mosaicists, as well as by the Venetians, and the demand for mosaic decoration is steadily increasing. Of that there is no doubt; and the question of the hour is not whether mosaics should be executed but *how* they should be executed so as to obtain the best results at the least possible cost. It is with a view to elucidating this question that I have prepared some notes on the methods of mosaic construction, which I hope may be of interest and may at the same time tend to remove misconception and prejudice.

Speaking broadly, there are two methods of construction:—

(1) The Old Method, namely, that of fixing the tesseræ on the wall directly and one by one.

(2) The New Method, whereby the mosaic is first executed on paper and thence transferred to the wall.

The *Old Method* is simple enough; the wall destined to receive the mosaic is prepared with cement, the cartoon is outlined on the cement, and the mosaicists, with the cartoon before them, proceed to place the tesseræ on the wall one by one.

It is needless to say that under certain conditions the very finest mosaics can be—and even in recent times have been—produced by this method. The ancient mosaicists, it would seem, invariably employed it, and probably no other process was known to them.

The first works executed in England by the Venetian mosaicists were so executed, and the result was entirely successful, but it was soon made clear that unless some less expensive and more expeditious means could be devised for executing and fixing mosaics very little could be done to advance the art either in this country or elsewhere.

Anyone possessing a knowledge of mosaic art knows that it is futile to expect the production of a really good mosaic unless the work is carefully supervised by a properly qualified artist. Men no longer "work for the angels," and even the best workmen require the supervision of the master. Where the artist is designer and mosaicist in one, as were so many of the ancient mosaicists, and where time and money are secondary considerations, the principal disadvantages of this method disappear; but it is rarely indeed that such a fortuitous combination of circumstances is to be met with. The artist who by reason of his genius and reputation would be commissioned to design a scheme of mosaic decoration for some large cathedral or public building would probably not be a mosaicist in the sense of possessing a close technical knowledge of the art, and if he were he could not be expected to overlook for several hours each day the workmen who are placing the tesseræ on the wall. Even supposing it were possible to secure so considerable a part of his time, the cost would necessarily be enormous. His designs and intentions have therefore to be carried out by another, who must be both artist and mosaicist. Such men are not easy to find; and when it is remembered that any large firm of mosaicists working by this method would require to retain on their staff many such artists, it will be seen that the difficulty presented is a very formidable one indeed.

Another difficulty which presents itself in the application of this method is the necessity of sending workmen from their homes to any part of the world where a mosaic is to be executed. In the first place it is difficult to get first-class workmen to leave their homes, and if this difficulty be overcome by increasing their remuneration the necessary expenditure for travelling and maintenance adds largely to the cost of the mosaic.

Then, again, where the mosaicists have to work on the spot, only a very limited number can work on the cartoon at the same time, and on such days and at such times as the condition of weather and light will permit, so that the work must necessarily proceed slowly.

There are difficulties which directly affect the *cost* of the mosaic. There are also difficulties which may, and in many cases do, affect the *quality* of the work. The conditions under which a mosaicist working on the spot has to carry on his work are frequently well-nigh insupportable. He is dependent on the

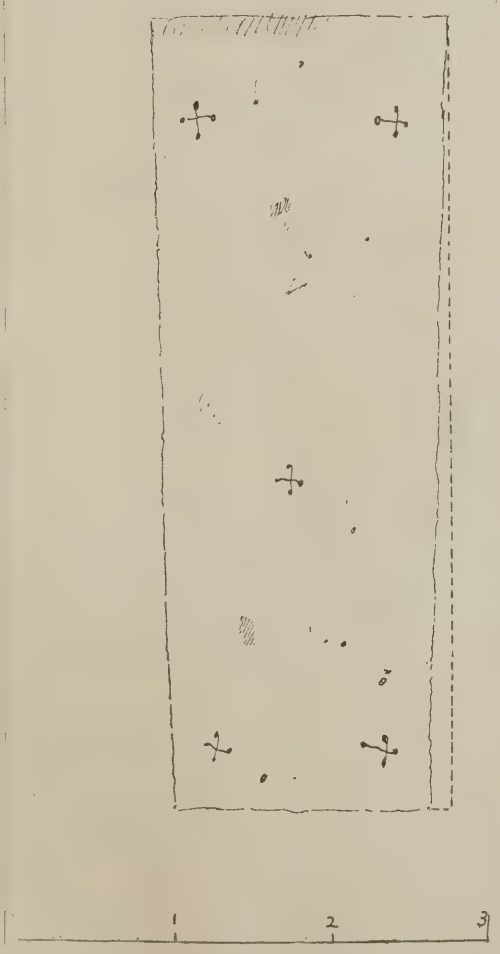


FIG. 8.—STONE SLAB, CORHAMPTON CHURCHYARD.

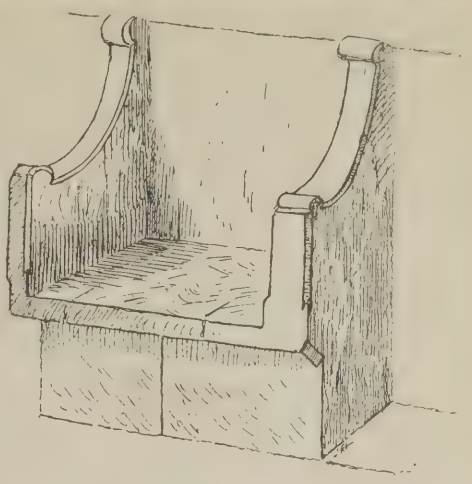


FIG. 9.—STONE SEDILE, CHANCEL, CORHAMPTON CHURCH.

climate of the country in which he finds himself, and even under the most favourable atmospheric conditions he must work in the imperfect light which comes to him through the shrouds and scaffolding by which he is surrounded; in winter he is chilled by the cold, and in summer he is half suffocated by the heat; he has to lie in all sorts of uncomfortable positions—sometimes on his side and sometimes on his back; and in spite of all these difficulties he is expected to exercise to their best his faculties and skill in reproducing not only the design but the exact colours of the cartoon which he is engaged in copying. What wonder if, under these circumstances, when the scaffolding and shrouds have been removed the mosaic is discovered to be faulty and that some parts have to be demolished and begun all over again, or, worse still, the defects are permitted to remain because the expense of removing them would be too great?

There are, in addition, technical difficulties into which I need not enter. Those I have cited are sufficient to indicate the reason which led the mosaicists who thirty-five years ago revived the art to the conclusion that unless some other process could be found little progress could be made either in this country or abroad.

When one remembers how much that is beautiful in mosaic art has been produced by means of this ancient method, it seems natural enough that it should have the affection, and even veneration, of many mosaists. To abandon it is to break with the past, and artistic sentiment is conservative, but

"The old order changeth, yielding place to new,"

and there are many indications leading to the conclusion that, except with reference to small works in which the designer is interested as mosaicist, this venerable method will not survive the stress of modern conditions, and that the existing wave of opinion in its favour will after a few costly experiments subside.

In expressing this opinion I do not forget the important work recently executed in the choir of St. Paul's Cathedral, but in that case the work was carried out under all the conditions necessary for the successful application of the method; there was no want of money, no limitation as to time, and the mosaicists were under the direct control of Sir William Richmond, who designed the cartoons. It would be quite out of place here to criticise the result, but it would be interesting to know the cost from first to last of each square foot of mosaic executed, including the fees paid to the distinguished artist who superintended the work.

I now come to the *New Method*. The Venetian mosaists, having decided to abandon the application of the old method to the construction of *decorative* mosaics, adopted,

developed, and, after many costly experiments, brought to perfection the method which has become associated with their name, and which they have applied to nearly all the large decorative works executed by them during the past thirty years. This method, or process, was explained by the late Sir Austin Henry Layard in the following passage of a paper read by him at a meeting of the Royal Institute of British Architects :—

"The necessity of working on the spot is now avoided by an ingenious process, which, however, is only applicable to decorative mosaic, and cannot be used when much delicacy of execution and extreme nicety in the gradation of tints are required. The workmen reverse the cartoon, and place the tesseræ with their proper faces downwards. The tesseræ are fastened with common paste to sheets of coarse brown paper, on which the cartoon is traced. When the work is finished it has only to be fixed with cement upon the wall destined to receive it, and the brown paper is then removed from the face of it. This process requires considerable skill and practice, especially when figures have to be executed, but is perfectly successful. Thus the decoration of any number of square feet of surface can be forwarded from Venice to any part of the world—to America or to India—with safety and at little cost."

To go a little into detail: the studio should always be well lighted and well ventilated.

The workers are under the control of an artist who is also an experienced mosaicist—indeed, his qualification for the post is that he possesses a large and varied experience in the practice of mosaic art.

The working mosaicists are divided into grades or classes. The workers in the first grade work on those parts of a mosaic which require the most careful treatment, such as the face, hands and feet of a figure; those in the second grade work on ornaments and drapery; those in the third grade have given to them the execution of simple backgrounds, and so on—each man being given that work which he is best fitted to perform.

When a cartoon is brought into the studio it is traced and reversed on coarse brown paper. This reversed tracing is then cut up into pieces of irregular shape, and these pieces are distributed among the various grades of workers. The cartoon is then hung up so that it may be seen by all, and the workers, being comfortably seated at their desks, with a small anvil, a small hammer, some paste, and the enamels they will require by their side, the work begins. Each worker having carefully noted the colours and the size and shape of the tesseræ required for his part of the cartoon, proceeds to cut his enamels accordingly and to place them with their proper faces downwards on to the plain tracing before him, and to attach them thereto with common paste.

With the exception of the tesseræ used for metals backgrounds (to which I shall refer later on), each tessera is the same in colour throughout, and all the tesseræ are of equal thickness and are evenly shaped from top to bottom. When, therefore, they are placed on the paper "face downwards," there remains under the eye of the worker the exact counterpart of the work he has executed—the design being carried right through the tesseræ—and he is thus able to judge of the effect of his work, and to make any necessary alterations or corrections as it proceeds.

Metal backgrounds sometimes require a slightly different treatment. Owing to the destruction of metal cakes, the metal is only visible from the front or face of the mosaic. All that the worker can see when he has placed the metal tesseræ face downwards on the paper is the glass by which the metal is backed. In the case of a plain gold or silver background no modification of the method is necessary, as the worker, by long experience, knows exactly the effect which is being produced on the face of the mosaic. When, however, a background is to be composed of various shades of gold or gold and silver, a treatment requiring the exercise of great skill and judgment, it is constructed face *upwards*, so that the workers may see the effect of each tessera as it is laid; then paper is pasted *over* it, and it is ready to be packed.

In a very interesting paper contributed by Mr. Clement Heaton to the Journal of the Royal Institute of British Architects he states that he was told at Venice it was impossible to do figure-work without grinding. I do not know from whom he obtained his information, but it is wrong.

The artist who controls the studio is in constant touch with all the workers, and in the course of his frequent visits to each one advises or corrects as he watches the progress of the work. It is he who divides the cartoon and distributes the pieces among the workmen; and in this connection it may be observed that sometimes a mosaic is required to be executed by a certain date much within the ordinary limit of time given to a work of the kind. It is impossible to hurry the workers, for that would be detrimental to the quality of the mosaic. The cartoon is therefore divided into smaller pieces than usual, and a large number of workers are employed on the work; and by this means, without hurry or injury, the mosaic is executed within the time allowed. Under the old method an expeditious treatment is not possible.

It may seem at first sight as though the employment of many workers on one design would produce inequalities in the workmanship which would mar the harmony of the work; but it must be borne in mind that the superintending artist controls the whole work and imposes *his* interpretation of the cartoon on *all* the workers. The slight variations in style which he would permit would only tend to add an interest to the mosaic without in any way disturbing the harmonious blending of its parts.

Practical mosaicists know well how difficult it is to avoid the intrusion of bits of enamel, of the same colour and possibly taken from the same cake, which when seen in a particular light or at a certain distance convey a different tint; this may be due to some slight defect in the enamel, so slight as to be unobservable to the worker when placing the tesseræ. Again, enamels which in one light appear to match exactly the colours of the cartoon, when seen in another light produce a different effect. Now, here again we have an advantage over the older method, for the mosaic can be viewed at any angle of light while the work is in progress and before the tesseræ are placed on the wall, and any defective parts can be removed with ease and at little cost.

When all the tracings forming the cartoon have been covered with enamel they are collected and placed in a frame, so that the whole design now translated into glass comes before the artist and workers and is again critically examined in various lights. In this final examination the artist has the assistance of all those who have been engaged on the work, an assistance which is of great value to him, for the eyes of the workers, trained by long experience in the practice of their art, are able to detect the least variations in colour, and the chances of a defective tessera escaping their notice are few indeed. When, therefore, they and the artist agree that the colours of the mosaic correctly interpret the colours of the cartoon, and fulfil the conditions (if any) imposed by the designer, it is passed, packed and sent to its destination ready to be fixed.

In recent times there has been in certain quarters some carping at this method; but the only important objections (and important only by reason of their wide-spread acceptance) are two:—(1) That by this method the workmen are working in the dark, so to speak; cannot see what they are doing, and are unable, therefore, to correct their work as it proceeds. (2) That *because* the tesseræ are placed face downwards on to paper resting on a flat surface, the surface of the mosaic must necessarily be flat.

The first objection has been disposed of in the description of the process already given, and there remains nothing further to be added.

As regards the second objection, it is difficult to understand how the fallacy came to be propagated and accepted by many as an article of faith. Even the latest writer on mosaics, Mr. Lys Baldry, in his charming book on "Mural Decorations," repeats it and condems the method on that ground. Some months ago the Royal Institute of British Architects held a meeting* to hear a paper read on the practice of pictorial mosaics, and the particular objection under consideration was re-stated, with considerable assurance, by the reader of the paper. Fortunately there was present at the meeting Mr. Walter Crane, whose wide experience in every branch of decorative art had brought him into contact with mosaics executed by this method. He took exception to the statement, though seeming somewhat mystified by the assertion of his friends, which contradicted his own experience. Referring to certain mosaics which had been executed from his cartoons by this method, he said :—

"He was very much astonished at the faculty with which his designs were reproduced . . . The tesseræ were given with the utmost exactitude, and the matching of the colours, allowing for difference in translation of the dead colour of the cartoon into the brilliant colours of the glass mosaic, was simply extraordinary; and even when designs were worked on this method he believed they had some method of giving a little push to the tesseræ, in parts, to get more variation of facet in the gold of the background."

Mr. Walter Crane was right. The fact is the placing of the tesseræ face downwards on the paper does not in any way affect the surface quality of the mosaic, which is regulated at the time the tesseræ are being fixed upon the wall.

When the mosaic is brought to the wall which is destined to receive it, the wall is prepared with cement, and the pieces into which the mosaic has been divided are taken from their cases, and the work of fixing begins. If one fixer only is working on a panel, about 4ft. of mosaic can be placed on the wall at a time. The tesseræ are pressed into the cement, and after a few minutes the paper is damped off and the mosaic discovered. It is at *this* stage that the character of the surface is determined. There is no need for hurry while the manipulation of the tesseræ is proceeding, as the cement used does not set firm for some hours after the paper has been removed; and there is no fear of the tesseræ sagging, as they are laid from the *bottom*, and not from the top as in the old method. If, therefore, the designer is also a practical mosaicist, and wishes personally to undertake the work of fixing, this method affords him facilities for stamping the work, in its final stage, with his individuality by giving to the tesseræ with his own hands that "little push" to which reference has already been made.

To facilitate fixing in localities where skilled fixers are not to be met with, mosaics intended to cover flat surfaces are sometimes set in cement before they leave the studio. The process is as follows: A bed of cement about ½in. thick is laid upon a smooth wooden surface, and before the cement has set an iron frame of ingenious construction (the invention of a Venetian) is pressed into it. This is then covered with an upper layer of cement prepared to receive the tesseræ, which are placed upon it in the same manner as, by this method, they are placed upon the wall. When the work is completed its appearance is that of a slab of marble rimmed with iron and covered on one side with mosaics. It can then be placed in

* 18th November, 1901.

position by any competent mason, and for that reason this special construction is suitable for mosaics intended for India or the Colonies. The colossal figure of Minerva in the Library of Congress at Washington was so constructed, and the result is perfectly satisfactory. Large panels are divided into sections, to facilitate packing, and these sections (like the sections into which the cartoons are divided) are irregular in shape and follows the lines of the designs, so that when fitted together no joints are visible.

It must be distinctly understood that the "face downwards" method is applicable only to decorative work and cannot be used (to re-quote Sir Henry Layard) when much delicacy of execution and extreme nicety in gradation of tints are required. In such cases the work is always executed "face upwards," and when finished is taken up on to paper from the front.

This, then, in brief, is the method which is now known as the Venetian method. For its successful application considerable skill and practice are necessary, but the experimental stage has been passed long ago, and experience has shown that the Venetians are capable of good work. They smile at the notion of a return to the older method, for they know that by the means they employ a mosaic of equal quality can be excuted at half the cost and in less than half the time; and so they are content to allow the "battle of the methods" to be fought out in their absence, while they continue to raise higher and higher the standard of quality, being convinced that, with the two masters time and money on their side, their views prevail.

In the course of this paper I have called the working mosaicists "workers" or "workmen," but, in truth, those in the higher grades are entitled to be more suitably designated. They have studied every style of mosaic construction and thoroughly understand the possibilities as well as the limitations of the material with which they work. Their wide practical experience has given them freedom and assurance in shaping and placing the tesseræ, and in adding all those subtle touches which mark the difference between a mere slavish copy of a design and a work of art.

Men who can produce work of this kind are, I think, entitled to be called artists, and in this opinion I am supported by the late Sir Edward Burne-Jones, who addressed the following letter to the chief of some Venetian mosaicists who had executed mosaics from his designs:—

"To the artists at Venice who have been so indefatigable in carrying out my designs I owe much gratitude, and I should be obliged to you if you would convey to those who executed the work some expression of my delight at the result of our co-operation, and my trust that it is only a beginning of our labours together. Will you kindly do this for me, because I know their skill and workmanship have been of an unusual kind."

Such words by such an authority go far to establish the claim of the Venetians to be the best mosaicists in the world.

Smirke.—"The Sketch" in an article on Whittinghame House, the residence of Mr. A. J. Balfour, states that the house was built in 1818 by Smirke, the architect of the London Royal Exchange. The architect was however Sir William Tite.

Design for a Memorial Church.—In the design illustrated on this page the author has attempted something which does not contravene the principles underlying all good architecture but which combines the good qualities of one or two different styles, and he thinks this is the only direction in which originality can be legitimately attained. He is quite aware that his design is subject to much criticism, and himself thinks he has carried his unbroken vertical treatment rather near the verge of eccentricity, but he thinks that the concentration of his ornament being at the top and all the vertical lines carrying the eye upward to this ornament somewhat atones for the baldness of the lower parts.

BRADFORD AND MUNICIPAL WORKS.

THERE has been an agitation in Bradford for the formation of a works department on the lines adopted in London and other places, and a sub-committee was recently appointed to go into the question. Representing this sub-committee, Alderman Vint and Councillors H. H. Spencer and A. Tuke Priestman have visited London, West Ham and Battersea to prepare a report on what was being done there, and make a recommendation as to what line of action the Bradford City Council should adopt. The deputation has just completed their labour and presented their conclusions. There are two reports, one signed by Alderman Vint and Councillor H. H. Spencer, adverse to the establishment of a works department in Bradford; and another, Councillor Tuke Priestman (a Socialist), favourable to such a scheme.

In their report Messrs Vint and Spencer state:—

"The London County Council Works Department, which we first visited, has been in operation since 1892. All engineering and architectural works decided on by the Council are estimated for by the Council's engineer or architect from their knowledge of current prices, and are offered to the Works Department at that estimated price. If the department accepts the contract, the work is carried out by the department. If not, the work is put up to tender and executed by the successful contractor. . . . Our observation led us to think that the work of the contractors was equal to that of the Works Department. Generally speaking,



DESIGN FOR A MEMORIAL CHURCH. HERBERT RAINE, ARCHITECT.

we found that the Works Department was unable to compete in price in architectural work with the outside contractor, but could do so in underground engineering work; that we had no proof that the work was better done by the Works Department; and that wages and hours were the same under both." As to the West Ham Works Department, the deputation found that while trade union wages were paid, certain other special privileges and payments were made, namely, a sick fund, holidays with pay, and an arrangement that whenever at union rates a man's wages did not amount to 30s. a week they should be increased by not exceeding 2s. a week. These payments were not charged to each job, but a special note was kept and the general rates were charged with them. Generally speaking, they found the departments worked with a great deal of enthusiasm and a desire for their success. The deputation made enquiries as to the effect that the multiplication of municipal workers had in regard to their votes at elections. In London and Battersea they were told that it was a negligible quantity, whereas in West Ham they were told (which was also denied) that the municipal employees would always vote for the men who would make them into a specially favoured class. The proportion of municipal employees was very much smaller to the population than in Bradford. In conclusion, the report states:—"We are compelled to report that we do not consider it advisable to establish a works department in Bradford. From what we saw we do not think that such a department could compete with the private trader; we also think that in cases where the Corporation can do so, the work will be done more economically and with much less friction between committees by the committees responsible undertaking the work. Perhaps the nearest approach we have in Bradford to a department for supplying the needs of the other committees is the Team Labour Department, and in this department we find just the same result as in West Ham—that whereas the Team Labour Department to compete with outside teamers has to supply horse, cart and man at 8s. per day, the actual loss last year was £1,122."

In the course of his report Mr. A. Tuke Priestman (the Socialist) says: "The works committee in the past appears to have been one of the principal battlegrounds of the contending parties, and its non-success financially, so far from being inherent in the system, was only what was to be expected under the circumstances. In Bradford, however, extensions of municipal enterprise, though strenuously opposed at first—as, for example, our trams—have, when once adopted, always received the hearty assistance and support of the members of all parties in the Council; the principal difficulty with which the L.C.C. Works Department has had to contend is therefore absent as regards Bradford . . . We had an opportunity of seeing, and in most instances examining, a large number of buildings of different classes erected by the departments. These included artisan dwellings, pnmping station (in course of erection), large public baths and washhouses, fever hospital, electricity generating station, coroner's court and mortuary, &c. The workmanship in every instance appeared to be of the first class. There can, therefore, be no doubt as to the ability of a department managed by a local governing body to turn out satisfactory work of any description which may be called for from it."

The reports were to be considered at a meeting of the special sub-committee appointed to deal with the matter.

St. Matthias's Church, Richmond.—This building has been thoroughly cleansed and re-decorated, and the electric light installed throughout the building.

THE WELLINGTON MONUMENT.

MR. D. S. MacCOLL, on behalf of the Committee, has replied, and replied very trenchantly, in "The Times" controversy to the strictures of Sir Edward Poynter. Mr. MacColl states that "Sir Edward Poynter described as 'fragmentary' a model that he had not seen, and he now retreats upon Lord Leighton's description of it as 'rough and unfinished.' I will content myself here with citing the words of an unbiased witness, Stevens's first biographer, Sir Walter Armstrong. On page 47 of his 'Alfred Stevens' (1881), he says: 'The work was left by the artist in a state of practical completion, and but little is required to make it ready for the founder.'"

The well-known art critic then directly challenges the President on the subject of Mrs. Tweed's qualification: "The promise, even, of Mr. Tweed's original work (in the judgment of more authoritative artists than the President, considerable), is not in question; for what the committee desire is, not Mr. Tweed's ideas, nor another's, but a faithful carrying out of Stevens's intentions so far as they are plain from the models. For this service, in their judgment, Mr. Tweed's training (under various masters, English and French), his accomplishment, and his sympathy with their aims gave a sufficient guarantee. The 'Cecil Rhodes,' which Sir Edward Poynter pronounces to be wanting in 'proportion, dignity and refinement,' has seemed to other critics to show remarkable tact, to say the least, in dealing with the conditions of a portrait statue, in making, from the proportions of Cecil Rhodes, from such blunt dignity as the subject offered, and by use of a breadth of handling suitable to the colossal scale, a monumental essay notable in contemporary work."

Mr. MacColl then states his main question "whether there could be any certainty that a sculptor nominated by the Academy would be willing to subordinate his own ideas to those of Stevens. On this point the previous history of the movement is far from reassuring. Lord Leighton, in his negotiations, had to contend with proposals to substitute an original design for Stevens's, and the conception of what had to be done was marked by an exaggerated estimate of the incompleteness of the model and of the part to be played by original 'genius'." This notion "which I do not for a moment attribute to all members of the Academy (Mr. Thornycroft's letter would be sufficient disproof if that were needed), was directly opposed to the committee's ideas and to the conditions laid down by the Dean and Chapter."

Sir Edward's treatment (in conjunction with Lord Leighton) of Stevens's design for the decoration of the dome of St. Paul's comes in for unsparing criticism; but the sting of the reply comes in at the tail where Mr. MacColl proceeds to "carry war into the enemy's country":—

"And now, sir, I will go a step further, for Sir Edward Poynter's claim to speak for the 'world of art' and to pass official judgment on others requires some plainness in scrutinizing his own credentials. Sir Edward Poynter, I readily grant, has shown himself a public-spirited man, ready to do his best according to his lights. But will any one contend that his ten years' record in his own province of the National Gallery is such as to give confidence in his artistic judgment outside of it? We have seen pilgrimages to Spain to procure inferior examples of Goya, while a masterpiece by that painter, exhibited at the Guildhall and purchasable at a moderate price, was allowed to slip away to Berlin, and there, at a greatly enhanced figure, was snapped up for the national collection. We see a 'Cotman' bought for £2,310, which is now, after damaging criticism, steadily mounting towards the roof. We see a portrait accepted as a Vermeer that has no claim to that name, or to inclusion at all. We see a Fra Bartolommeo acquired that, to say the least, very poorly represents its author. We see two daubs hung (at an outlay of £2,160) on either side of Leonardo's 'Virgin of the Rocks.' These are some of the few things done and the list of things undone; of opportunities missed from lack of conviction it would take too long to recount. Our national collection is at a standstill, the despair of lovers of art. The colleagues of Sir Edward Poynter must bear their part of the blame; but would he not better employ his influence with the Treasury in obtaining funds for the starved collection that it is his office to direct than in throwing what influence is left to him against the effort to get one thing quietly done amid the official stagnation?"

It is probable that at any early date the Committee will publish in a technical magazine photos of the models, &c., so that the public will be in a position to judge of the completeness of Stevens's work.

Law Cases.

Architects' Fees.—Before the Court of Session, Edinburgh, this appeal was heard. It appears that Mr. David Smart, architect, 8, High Street, Perth, was employed by the defender, Mr. J. A. Shepherd, Summerhill, Stanley, who had taken a lease of Delvine House, Murthly, to prepare plans and do all the necessary architectural work for alterations of the house and offices, including drainage, water supply and electric lighting. The defender declined to pay the pursuer the account charged by him for the work done. The defender had taken the work from the pursuer and put it into the hands of another architect, and accordingly the pursuer sued for his account, which amounted to £304. It was admitted that the work done by the pursuer was well and competently done; but payment was refused on the ground that the account was overcharged. It was contended that the pursuer was not entitled to the 2½ per cent. commission allowed by the table of the Institute of British Architects, and that he was only entitled to the value of his services, and a tender of 200 guineas was made. Sheriff-Substitute Sym decided in favour of the pursuer, subject to deduction of an item of £18 for an alternative water supply which was not carried out. The defender appealed to this court. The division, without calling on counsel for the respondent, affirmed the judgment of the Sheriff-Substitute, with expenses to the respondent, holding that the account of the pursuer was in no way excessive.

At the Edmonton County Court Mr. Watson, an architect, of St. James Street, W.C., claimed from the defendant, a coach-builder, of South Hornsey, £9 16s. for preparing plans, specifications, &c. The defendant approached Mr. Dearing, a builder, with a view to enlarging his workshops. Mr. Dearing, it was said, advised him to employ an architect, and recommended the plaintiff, who was instructed by the defendant to get out plans, &c. The plaintiff attended at the works and made measurements, and submitted plans, which the defendant approved. Mr. Deering estimated that the job would cost £350; the defendant decided that he could not afford the expense then, and nothing further was done in the matter. The plaintiff sent in his account, and it was repudiated. The defendant denied giving the order to get out plans. He asked Mr. Dearing to give him an estimate, and he understood the plaintiff was engaged by Dearing. His Honour gave judgment for the plaintiff.

ARCHITECTURAL ASSOCIATION.

THE VALUE OF GREEK WORK.

By Prof. G. BALDWIN BROWN.

A MEETING of the Architectural Association was held at No. 9, Conduit Street, W., last Friday, Mr. Henry T. Hare presiding. The following were elected members of the Association:—Messrs. Walter Sykes George, Theodore Charles Mannooch, Percy Hubert Keys, George Williams, Ingleson Charles Goodison and J. W. Simpson, F.R.I.B.A. Messrs. A. Burnell-Burnell, F.R.I.B.A., and R. H Kerr were reinstated members. Prof. G. Baldwin Brown then read a paper on "What is the real value of Greek Work to the Modern Artist?" of which the following is a summary:—

It is quite possible, at any rate, that there is latent in some minds a certain feeling of impatience with regard to the exalted claims which are sometimes put forward on behalf of the arts of Greece, and it should be said at the outset that this paper is not written from the point of view of the professed classicist, in whose judgment the ancients could do no wrong.

The opposition which in the present day the votary of classicism will have to meet is not a militant opposition. He will find in some quarters people who are slightly bored by Hellenic achievement and, though they accept it as beyond the reach of criticism, decline to trouble themselves to analyse its qualities or to assimilate its standards. He will find in other quarters a tendency to accept Greek work in a somewhat patronising spirit, with the proviso that it must have got a little fuzzled and warped and wavy through the lapse of ages, before the sensitive modern eye can take delight in it. Is it not the case that the mediævalist will sometimes offer a sort of apology for his admiration of Greek work, on the plea that, as we now possess it, its charm is so largely aided by the mellowing touch of time? The sculptor of to-day will sometimes tell us that the corroded condition in which works like the Elgin marbles have survived is to their advantage as works of art, and that they look better with the texture that time has given to most of the surfaces than they can have appeared in their pristine freshness.

There is, indeed, not a little affectation in the modern workshop of the undefined, and to this a right understanding of Hellenic work supplies a much-needed corrective. It is a first principle in the study of that work that it must be accepted as it was at the moment of its completion, absolutely clear in its definition and thorough in finish. The finish that the Greek craftsman put on his work is the secret of some of its finest qualities. It is precise and smooth, while it yet shuns the rigidity and lifelessness that some of the neo-classic styles in the modern world have taught us to know and to avoid. It is, however, only shapes that are perfect in their beauty and expressiveness that can bear the pitiless exposure which exact finish carries with it. If form be not really fine and studied in all its contours, then "sensitiveness of surface," "suggestion," and "texture" make a very pleasing and attractive substitute. But it is only a second-rate achievement to cheat the eye with a vague impression of the artistic in broken colour and light and shade. The Greek artist would have looked on this device with something of contempt, and we can imagine how Lucian's satire would have played about the work of the artistic genius who did not quite know his own mind.

Greek work, accordingly, may be taken or may be left alone, but, in any case, the qualities by which it must be judged are those it possessed when it left the artist's hand, and not certain adventitious qualities it may have derived from the accidents of the centuries. Quite enough of this work has come down to us practically untouched for us to be able to judge how the work looked under the sun of Hellas.

What now is the true value to the modern artist of Greek work of this kind, frankly accepted in the Greek spirit?

The answer to this question in its broadest aspect is already conveyed by implication in the query itself. It is obvious that the answer must be, to a great extent, an expansion of the simple thesis that it is the spirit of Greek work rather than its outward features that will be found of real value to the modern practitioner. The Classical Orders have supplied, it is true, a repertory of ready-made details that have been usefully employed in Western European buildings from the time of the Renaissance downwards. The forms in question are in themselves arbitrary forms, meaningless to the modern intelligence, and their continued employment in modern work is by some strenuously opposed. The movement known as the New Art movement, for which Scotland, to its pride or to its shame, seems to be in some part responsible, aims at substituting for these conventional forms other forms devised on each occasion by the constructing artist. These forms, whatever else may be said about them, are, at any cost, original, and it is claimed for them that they are more interesting than the time-honoured exemplars which for three or four centuries since the Renaissance, each succeeding generation has tamely accepted from the last. So far as at present appears, the Classical Orders seem likely to hold their own; but it is quite an open question whether this is due to any inherent æsthetic virtues which they possess or merely to the innate conservatism of the human mind. In other words, there may be a real, even a profound and cogent, artistic reason for the continued employment in certain kinds of work of classical forms; and if this reason can be made clear, then the forms are no longer dead forms, but living, in that they answer to the living needs of the present hour. On the other hand, the forms may be only retained as a mere matter of tradition, and if this be the truth, it may fairly be argued that they have become a sort of incubus on architectural practice, and by their deadening pressure flatten this into the academic.

The question here posed of the artistic value of the stock of material features handed down to us from the antique is only a subquestion embraced within the larger enquiry formulated in the title to this paper. On the sub-question some words may be said later on, but it is as well to begin by regarding the subject in its wider aspects, and to discuss rather the spirit of Greek work than the practical models which it supplies to the builder of to-day.

The spirit of Greek work can be best understood if we contrast the most characteristic artistic expression of the Hellenic mind, the Doric temple, with a monument that embodies as perfectly the opposite artistic tendencies which have been already referred to under the term "Romantic." The French cathedral of the thirteenth century shares with the Greek temple the distinction of representing the highest development of which architecture has shown itself capable. The two buildings are complementary to each other, each possessing characteristic qualities that the other lacks. Each is the expression of the ideal of an age—the pedestalled isolation.

The pedestalled isolation of the Classical fane, the clear-cut precision of its parts, where every ratio of size and place is studied, every profile matured with fastidious attention, are characteristically Hellenic; and by their own language these architectural features convey the central idea which in the moral life, in society, and in the state the best of the Greeks were for ever striving to realize. Against this Hellenic definiteness and lucidity may be set the comparatively mystical temper of the Middle Ages; and the cluster of multitudinous details that in picturesque illusive outlines enfold the thirteenth-century cathedral are creations just as characteristic of the romance and enthusiasm of the North.

Much of the impressiveness of mediæval buildings depends on the suggestion of mystery. Their interiors are amplified in effect by a disposition of the masses and the voids, which offers a "something beyond" in whatever direction we turn our eyes.

Through this characteristic mediæval buildings appeal to the imagination to an extent unparalleled in the more severely bounded Classical structures, and they derive from this their special hold on our sympathies.

With this general impression in our minds of limitless complexity, of surroundings only partly apprehended, that offer from every side some fresh appeal to the imagination, let us contrast the opposite impression of absoluteness and lucidity which we receive from the severely bounded forms of the Greek architectural monument. For this purpose we must select a building as nearly as possible complete. A ruined temple like the Parthenon is of little help save for the study of details, because it has just lost that characteristic of absolute symmetry and evenness which is the quality with which we are for the moment concerned. The comparatively perfect temple beneath the Acropolis, the so-called Theseum, is on rather too small a scale, when measured with the rock-like masses of the Parthenon overhead, to produce a full architectural impression. A large temple, however, of an early period, roofless, but on the exterior otherwise well preserved, stands at Pæstum, in Southern Italy, and this is happily the best known and most accessible of all extant examples. The great temple at Pæstum is so situated that one comes upon it suddenly after walking a few hundred yards from a bustling little railway station whither a crowded loaded local train has transported us along five-and-twenty miles of hot and dusty railroad from Salerno. It bursts into view in a moment as we round the corner of a wall—a vast clearly defined mass, golden in the sunlight against the grey-green vegetation of the plain and the blue of the distant promontory. Its platform rises shapely on every side from abundant tufts of the beautiful *acanthus mollis*, from which is derived the leafage of the Corinthian capital, while in regular and continuous order the ponderous Doric shafts are ranged upon its topmost level, and bear above them the great horizontal incubus of the entablature. The brilliantly illumined columns alternate with darkened interspaces, and in monotonous succession they follow each other in diminishing perspective along the receding face. Side corresponds exactly to side, end to end, and above the columns there is everywhere the horizontally bisected entablature, with the alternating triglyphs and metopes. The strong shadow cast by the projecting cornice and the gleaming strips of the corona crown the whole with an unbroken skyline.

The impression is at first one of overpowering magnitude, and the secret of this effect it would be interesting to trace. As a fact, the length of the building is much less than half that of the National Gallery in Trafalgar square, yet no one ever received from the latter any impression of size. It is not, however, an impression of complexity, for the similarity of the alternating forms, by which we measure the bulk, forces itself on our attention, and we cannot escape obtaining from each of these forms a perfectly clear and definite impression, both in itself and in its relation to the other forms with

which it is combined. The satisfaction which the eye receives, at first from the general mass and next from the forms in themselves and in their relations, is so complete that we ask for nothing more. We do not realize, or at any rate do not lament, that the building is absolutely plain, devoid of every touch of ornament and of any colour save that of the actual material in which it is wrought.

There could be no more convincing refutation of Ruskin's famous paradox than the function of the architect is merely to supply a framework for the display of decoration in carving and colour. The artistic effect here is purely one of form, and the example supplies a potent argument in favour of those who contend that both architecture in its monumental aspects and sculpture are arts of form and of form alone. From the natural colour and texture of the materials employed they derive all the value that is possible, but, except in the interiors of buildings where other considerations come in, they do not ask to be painted. Architecture, moreover, again in its monumental aspects in exteriors, as an art of form is independent of ornament. No one to whom Pæstum comes as a vision of power and beauty ever troubles about the untenanted pediment or the empty metope slabs. The austere plainness of the fabric only brings into clearer relief its inherent qualities of form and perfection.

For the secret of the effect of a fine monument of Grecian architecture is due, first of all, to the studied relations of form and size among a number of similar and often repeated parts.

Proportion, it need hardly be said, is the primal secret of the æsthetic effect of architecture, and no builders ever understood so well as the Greeks how to compass this effect by the simplest means. When the first overpowering impression of majestic repose we receive from a fine Greek monument has passed from the mind we find ourselves balancing part against part, the uprights against the horizontals, the architrave against the frieze, the triglyphs against the metopes, the height of the column against its thickness, and finding everywhere the most absolute satisfaction in relations which we feel could not be more harmoniously combined.

As mere forms, through their shape and size and relations, the parts of the Greek façade give this satisfaction to the eye and to the sense, but we receive a further impression, and one of a more complex and intellectual kind, when we note the clearness with which each of these parts proclaims its place and function in the organism of the whole. Furthermore, a closer study directed towards the features in themselves, apart from their relations, exhibits each form worked out to the minutest detail, so as to satisfy alike the eye by its contour and the intelligence by the fitness of its shape for the work it has to perform.

If we try to express now in a word or two the practical benefits to a designer of a study of Greek work in this most monumental form, we may claim that it illustrates in the clearest and most convincing fashion some of the more important tectonic principles that apply to construction and decoration in general. Of tectonic principles Greek work is, indeed, the compendium. The Greeks are by no means always right, but their practice in these respects is more consistent and logical than that of any other artistic people. As a general rule they conceived with singular clearness the conditions of the artistic problems with which they had to deal, and were alert to seize and give effect to the suggestions of the material and the process which appeal so often in vain to the opinionated modern craftsman. But this expression "tectonic principles" must be further defined and illustrated.

In Germany they have a very useful substantive "tectonics," by which is meant the philosophy of construction. "Tectonics" embrace the underlying principles of all constructive art, whether this be applied to the making of a tea-cup and a cabinet or a great architectural monument. An apprehension of these principles belongs of course to every competent architect and designer.

In the first place, then, the student of tectonics will apprehend the characteristics of different materials, and the methods by which these materials are put together, and will discriminate the forms naturally produced by one substance and method of construction from those that are the outcome of other materials and processes. Consider how many solecisms in designs, how many contradictions and inconsistencies, would be saved if these fundamental facts about materials and processes were always clearly before the minds of constructive artists.

In the second place there will follow, on the study here recommended, a due apprehension of the principles of effective, as well as of sound and consistent, design. There will be an understanding of the value in any complex composition of a base, plinth or pedestal to give the structure or object a proper stand; of a cornice, cresting, or other crowning feature to provide it with a finish above; of framings of various kinds to give value to particular portions; of mouldings and similar features which assist composition by connecting part with part, and furnishing guiding lines to unify the effect of the complex whole. Here, again, it is a most salutary process, not only for the learner but also for those already immersed in practical operations, to train the mind to get below the special forms, say, of mouldings of the different Gothic periods or of Doric caps or Ionic cornices, down to the fundamental idea of a moulding, a cap or a cornice in the abstract. The intention and significance of such details in themselves is something prior to the special shapes which they assumed in this or that particular architectural period, and there are many students who could sketch the profiles of all the mouldings of the "styles" in half an hour, but who have never really argued out for themselves, as a matter of principle, the artistic functions of the moulding in its general idea as an aid to architectural composition.

In the third place, the principles of the placing and the selection of ornament are corollaries from the more general principles of tectonics. From an intimate knowledge of structure follows discernment of the fitting scheme for the distribution of ornament, the placing of which in its relation to the fabric is one of the most important matters for the designer to understand, while an apprehension of the different characteristics of materials leads to an instinctive judgment of what sort of ornamental treatment is suitable for each. A phrase just used suggests a word of comment. The phrase in question is "the principles of the placing and selection of ornament." It would seem more natural to reverse the order, and to say "the selection and the placing of ornament"; for to most lay people and to many designers the ornament is a thing apart, that has to be chosen for reasons of beauty or interest or symbolism and applied later on to the fabric in some convenient position where it will "go" or "come in" or will "look well."

If, on the other hand, we regard ornament from the tectonic point of view, we find that it is the placing which is the important matter, and the actual character of the motives a quite secondary consideration. In other words, ornament as enrichment, as the diversifying of a surface with light and shade or colour, is prior to ornament considered as the display of leaves and flowers or beasts or human shapes. Ornament which grows, as all ornament should grow, out of structure and material is primarily enrichment and not representation. Its representative character comes into consideration only after its place and general artistic effect are properly determined. What, now, do we learn from Greek architecture about these principles of ornament?

In the first place, we learn to keep distinct in our minds two things which in modern practice are often confused—ornament and the detailed treatment of features. By this detailed treatment is meant such things as the fluting of columns, the curving of the echinus, the profiling of mouldings. This is not ornament. The purpose of a detailed treatment of the kind for architectural members is to emphasize function and make clear the relation of parts. It makes the particular feature what Boetticher called an "art form"—that is, a member of the structure which receives a special shape and finish with a view to making it expressive of its place in the organism of the whole. So the fluting, the tapering, the entasis, the necking of the Doric shaft are all intended to force on the spectator the impression of the work the column has to do and its relation to the rest of the fabric. It would be wearisome to attempt an analysis of the various forms used in Greek architecture, so as to show how in each case the general shape and the finish of details were not matters of chance or of fancy, but of deliberate artistic talent. By this, of course, is not meant that they followed any abstract formula, or were reasoned out in black and white as an engineer makes his calculations. The whole process of their creation and elaboration was an artistic one, just as the process of balancing pressure against pressure, and weight against support, in the French Gothic cathedral was one of tact and in tuition, and not of formula and figuring.

This significant vesture, in which the architectural forms of the Greek temple were clothed, is something quite different from ornament. Ornament is abundant on very early buildings in Greece, but in the Doric temples of the severe archaic style it is sparingly introduced: while the tectonic details, especially of the antæ and the necking of the capital, are tolerably pronounced. The mouldings of the early Doric style, especially the undercut hawksbeak moulding, are carried pretty far in their profiling, but the carefully composed contour is not ornament. When at a later date the same moulding is carved into the egg-and-dart or the Lestrian cymation, then there is ornament, but the profiling and the enrichment are, artistically considered, two quite different things.

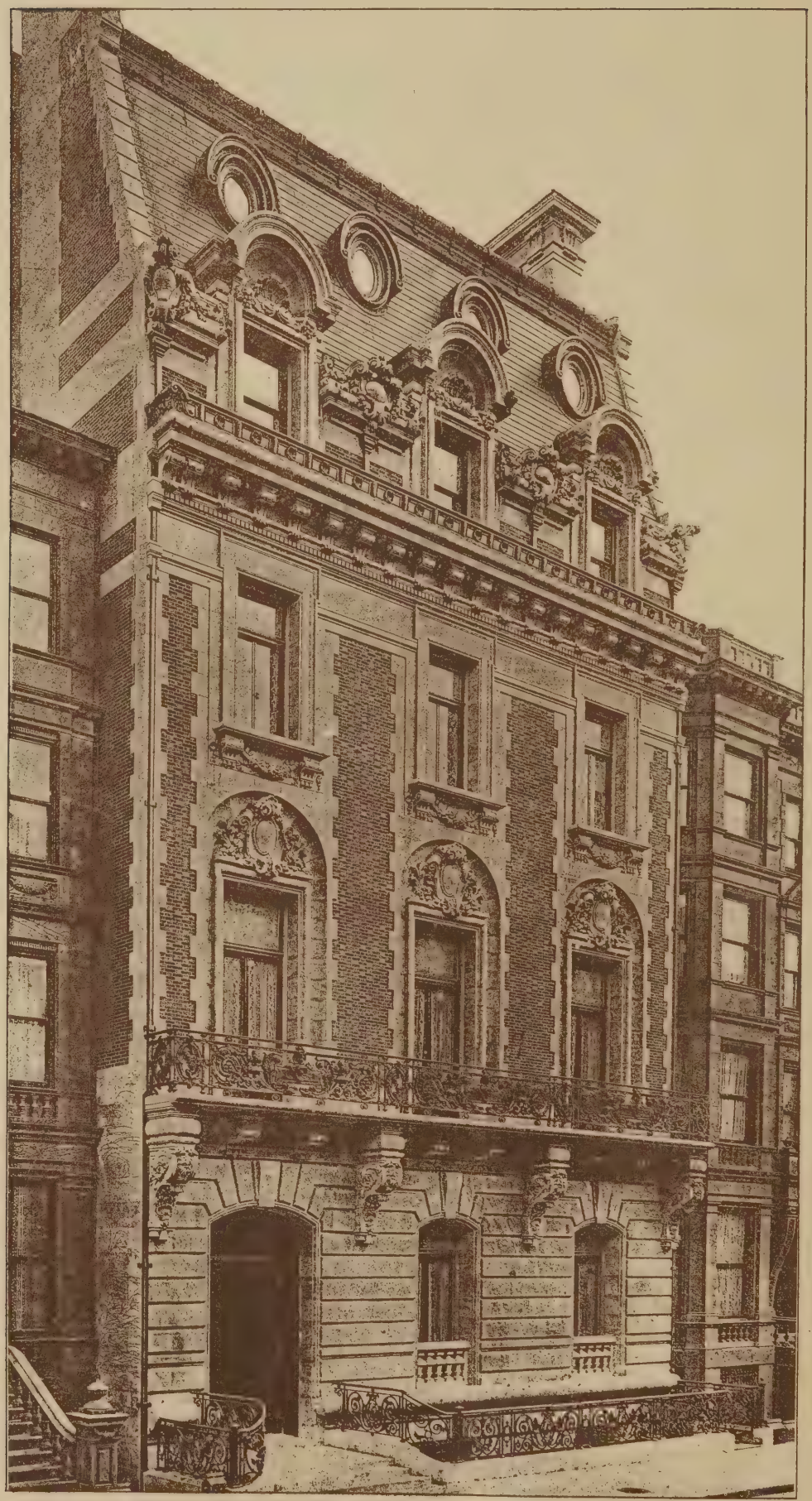
On the Doric buildings of the normal type, represented, of course, centrally by the Parthenon, ornament takes its place as an important part of the effect of the whole. It is not so important that we can hold with Ruskin that the whole of the architecture of the building is a mere scaffolding for the support, a framing for the display of the carved enrichment, but we cannot properly consider the monument without taking account of the figures in the pediment of the storeyed metopes and the frieze. And it is one of the most instructive features of this central example of Greek work at its highest point in design and execution that the placing and the character of the ornament are just as much matters of logical principle as is the constructive skeleton. The principle on which the Greeks placed their ornament upon any complex structure, such as a building or piece of furniture, has been so often discussed that one ought, perhaps, to pass it over as something which, like the justice of Aristeides, can be taken for granted. Gottfried Semper, whose work on "Style in the Technical and Tectonic Arts" is the Bible of æsthetic principles as they are understood by the artist rather than by the literary critic, was the first to point out the true

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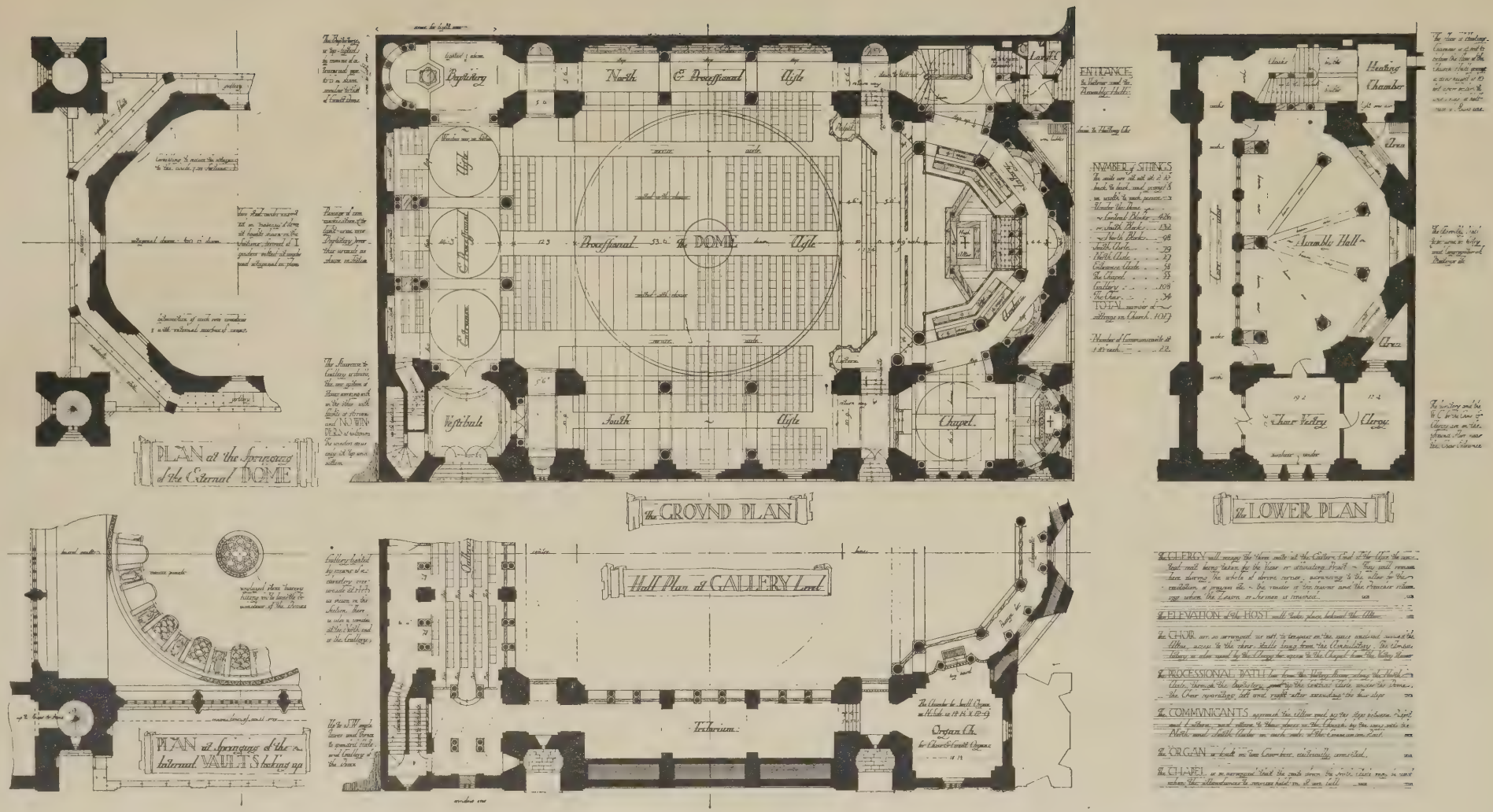
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relation of ornament to structure as illustrated in the work of the Greeks. There is a well-know aphorism of Owen Jones, in the letter-press to the "Grammar of Ornament," to the effect that we are not to construct ornament but to ornament construction. The statement is epigrammatic, but, as it stands, misleading. To ornament construction, if it mean to lavish enrichment on the parts which actually form the skeleton or framework of the fabric, is contrary to sound principle and is quite opposed to the practice of the Greeks. The phrase should be expanded to mean that ornament should always bear a due relation to construction. It is not the fact that construction is to be adorned, but construction is to provide the places where ornament may fittingly be disposed. The Greek practice was to choose for the location of ornament intermediate spaces, or points of rest as they have been called, in the construction, so that the beautiful and significant forms of the enrichment should be displayed where no structural work is being done by the members that form the actual framework of the whole. In this arrangement there is avoided any conflict in our minds between the impression we receive from the structure and that which comes from the ornament. In any complex whole, compacted of parts, one ought to be able to see at a glance what is the constructive function of each of the members that is really essential to the fabric. In the Greek façade this is particularly clear, for the contrasts of the supporting members, the columns, with the corresponding horizontal of the architrave, takes the eye in a moment. It is the function they are seen to fulfil that gives them their interest for us, and the Greeks kept these parts plain and simple in order that attention should not be distracted from the constructive significance which in their case is all-important. The fluting and other details of the column are not, as we have seen, of the nature of ornament, but art-forms intended to explain the position and function of the column in the structure. The sculptural enrichment of the Doric temple is practically confined to three positions—the frieze, the pediment, and the acroteria; for the lions' heads along the sima which act as gargoyles are exceptional features, partly tectonic forms and partly ornaments. In the Doric frieze the triglyphs are clearly structural features, short pillars repeating in their upright grooves the fluting of the column shaft below, and proclaiming thereby their function as supports for the third stage of the building, the cornice. The metopes, set back a little behind the face of the triglyphs, are points of rest where no structural work is actually being carried on, and when the eye rests upon these there is nothing to distract attention from the ornament which is there displayed. The same may be said of the triangular field of the pediment; and as regards the acroteria, we have in the figures or ornaments exposed against the sky a crowning finish that sits lightly on the mass and is out of all structural relation thereto.

So far of the distribution of the ornament in relation to the structure.

If now we examine a litte more narrowly the character of this carved enrichment, we discern another artistic principle of equal value. Not only should ornament be intelligently related to the framework of a structure, it should proclaim itself a part of the fabric in that it blossoms out from it just at the right points, after the fashion of organic growth. It is, from this point of view, interesting to note how recent archæological discoveries seem to show that the sculpture on metopes and in pediments is not to be regarded as so many statues and groups in the round, independently made and set up in niches or blank spaces on the building, but as reliefs on the surface of originally plain slabs of stone that backed the pediment or filled the intervals between the triglyphs. The earliest metopes from Selinus in Sicily, in the museum at Palermo, show this, because though the relief is very high and the figures in part detached from the ground, yet a portion of the original slab is left all round the figures as a sort of framing, and is from the tectonic point of view the most important part of the whole. One of the most archaic of all extant pediment compositions, found some years ago on the Athenian acropolis, is actually in somewhat low relief upon the back wall of the pediment. The frieze of the cella of the Parthenon, save, perhaps, in the western end, was evidently carved *in situ*, perhaps before the stone roof of the peristyle was put on, and is worked on the very stones of the wall. Not only this frieze, the relief of which is very low, but also the metopes and the pediments, which, as we have just seen, are essentially reliefs and not groups in the round, represent a diversifying of an otherwise plain surface of stonework with light and shade. The representative character of the ornament, the subject of the reliefs, is a secondary matter. The fact that these ornamented portions of buildings like the Parthenon have been abstracted from the fabric and set up in museums as specimens of representative sculpture, obscures their true character. At Palermo the Selinus metopes are properly placed in the museum, set between the actual triglyphs and under the actual cornice of the temple, so that their decorative character is emphasized. The same plan is adopted in the British Museum in the case of some smaller monuments, but the Parthenon sculpture is not tectonically shown.

The architectural monument represents, of course, the most important application of tectonic principles, but these same principles apply equally to furniture, to vessels and utensils, and, indeed, to everything which is made up of parts. There is always in regard to these objects a suitable or an unsuitable general shape; a right and a wrong way of putting the parts together; an opportunity for making the structure look clear and firm and serviceable, or mixing the whole thing up in a meaningless tangle. There is always a fit place and an unfit place for the display of ornament, and a correct and a mistaken character for the ornament to take. A course in tectonics should form, I venture to think, a fundamental part of every scheme of artistic education, whether for architecture, for sculpture, or for the various decorative and industrial arts. A student who has obtained a grip of these basic principles would gain enormously in directness of vision with regard to his general aims in his work, and would be saved from many tentative experiments and from not a few blunders.

We have not to lament that we were once Greeks and are in danger of being Greeks no longer, but are in the happier position that we can claim as our own the heritage of Hellenism in virtue of that free cosmopolitanism which permits us to choose from all the past such lessons and examples as we need.

And we need to take over from the Greeks that obligation to absolute thoroughness and certainty in all we do, which, as artists, they so well recognised and fulfilled. Nothing we owe to the Greeks is of greater value than the very high standard they set, both in artistic thought and in artistic execution. Whatever the Greek artist touched he gave to it beauty and significance, and there resulted what the Germans call a "Beseelung"—a "giving of a soul" to all constructive forms. These possess, in consequence, a distinction, a look of purpose and efficiency, that have secured for them a kind of artistic immortality. They are still with us, and will probably remain a possession of the human race to the end of time. But whether we actually continue to use these forms or not they are abiding standards of form and finish, the virtue of which as standards will only increase with time. The tendency in modern days to haste an incompleteness of work will grow greater as the general hurry and strain of life increase, and the repose and perfection of Greek work will become more and more precious in contrast.

A more limited employment of classical forms for domestic as well as for monumental purposes we find in the neo-classic town architecture of eighty or a hundred years ago, of which the work of Robert Adam, in Edinburgh and London, is a central example. The scheme of the buildings in question is not classic, for the chief element in their architectural effect is the wall pierced with window openings, and this is not a form used in the antique world; but the details are largely drawn from the "repertory of ready-made details" referred to at the beginning of this paper. The question has been already posed, whether the continued use of these is only a matter of unreasoning habit or has for its justification some solid artistic grounds.

Enough has been said already about the merit of these features in themselves as perfected by the form-giving genius of the Greeks. The objection to their continued use is based on the fact that, though admirably fitted for their original purpose and surroundings, they are trite and conventional forms meaningless to the modern intelligence.

May it not be argued, however, that this very familiarity and conventional character of the forms in question is an architectural advantage? If the effects of architecture depend so largely on composition—that is, on the relations of proportion among the parts—the less attention the parts attract to themselves the better. The original features which the New Art movement has introduced into notice challenge attention by their novelty and sometimes by their strangeness, and even their uncouth aspect. Attention is in consequence distracted from the general effect, which depends on the harmony of relations, and is directed to the parts rather than to the whole. If these forms were good in themselves we might be content to wait till we became familiar with them, and they dropped in consequence into the background. As a fact, however, the creation of satisfactory tectonic forms is a very much more difficult matter than some people imagine; and a repertory of features that are to take the place of the forms matured by the Greek masters of old is not the work of a single day or generation.

Prof Beresford Pite proposed the vote of thanks, which was seconded by Mr. H. Heathcote Statham, and supported by Mr. Alexander Wood and Mr. Henry T. Hare.

Mr. James Harkness, builder, of Hawick, died last week at the age of eighty-seven years.

New Bank at Belfast.—The Ulster Banking Co., Ltd., have just built a new branch, which is erected on a commanding site at the corner of Earl Street. The building is designed in the Classic Renaissance style of architecture, in which the Roman model has been selected in preference to the Grecian. It has a frontage of 40ft. in York Street and over 81ft. in Earl Street, is carried out in Doulting stone, relieved with Ruabon terra-cotta brickwork, with a base of polished grey Dalbeattie granite. The contractors for the entire work were Messrs. Courtney & Co., of Shaftesbury Avenue, who are to be congratulated upon the manner in which they have executed their contract, and the building has been executed from the designs and under the superintendence of Messrs. Lepper & Fennell, M.R.I.A.I., 33, Waring Street, Belfast.

Bricks and Mortar.

Aphorism for the Week.

Beauty is the result of all the various perfections whereof an object is susceptible, such perfections being dependent on the agreeable proportions between the several parts of the same object, and on the proportions between each part and that object as a whole.—JOSEPH GWILT.

Damage from Vibration. A CORRESPONDENT of "The Standard" who is part owner of several leasehold houses over the projected line of route of the Great Northern and Strand tube railway invites other leaseholders to co-operate with him in fighting a possible "test action" regarding compensation for vibration. He states that "notice to treat for an easement or right to construct the tube under our property was served in due form, and we, on the advice of our surveyor, made a claim for £500. On receipt of this claim, the surveyor to the railway calmly states that his instructions are not to recognise any claims by leaseholders, as the railway has been advised that leaseholders have no right in the subsoil of their property. If this is so, then leaseholders with the railway running immediately below their property, in some cases perhaps only 25ft. below the surface, have no redress for the injury which must be done to their property other than such as may be afforded by clause 24 of the Company's 1902 Act—the clause which was inserted on the recommendation of the Committee on Vibration, and gives a right to 'compensation to the owner . . . of any land . . . which shall be injuriously affected by reason of the working of the railway . . . provided that the claim is made within two years from the date of opening such railway for public traffic'; but there is no doubt that the provision will be found quite inadequate to compensate even those whose property is only affected because of proximity of the railway. Settlement in buildings are hardly likely to take place within two years, and vibration will have had but slight effect upon the structure of most buildings in so short a time. If, then, the clause is likely to prove of but little use to owners of neighbouring property, it is still less likely to meet the needs of owners of property immediately over the line of railway, and, of all owners, the leaseholder is the one most likely to suffer, for, besides the depreciation in the letting value, he has generally to face a liability under a covenant with his landlord to make good any damage to the structure, and this in the case of settlements in brickwork practically means rebuilding."

Architectural Sketching in Charcoal. THE Northern Architectural Association held a meeting recently, when Mr. Ralph Hedley, R.B.A., gave an address on the subject of "Sketching in Charcoal." Mr. Frank Caws, Sunderland, the president, occupied the chair. Mr. Hedley said charcoal had been appreciated by artists for ages, but he did not think it had been quite sufficiently appreciated by architects. The reason why he advocated charcoal so much for drawing details of whatever kind of decoration was required was because it lends itself so readily to what one desires to express. Delicate, soft or sharp lines; broad and delicate tints; broad and decided shadows, could be produced with charcoal with much more ease than with pen or pencil. With charcoal they could give all relative planes, of any required depth or strength, quality and feeling. That was of the utmost importance, and would enable details to be understood at once—that was projections and sinkings—if great care was taken to imagine a light coming from either the right or the left. In showing relief in a design, if they got the light full on it was rather deceptive when it was handed over to be executed. It was often very difficult to know whether the designer of some piece of ornament intended parts to be concave or convex without showing a section, and it was quite impossible to show sections in delicate parts of foliage. If a little thought was displayed in drawing, it could be expressed and understood almost as well as working from a model in relief. It was extremely difficult to express with pen or pencil in full-sized drawings. By the pressure required and the trouble involved in drawing a great number of thin lines all freedom was lost, and with freedom, certainly individuality must be lost, and he thought every drawing of decoration should have individuality. The easiest way of getting individuality was by working with something that expressed their thoughts, and they could not help themselves if they used charcoal freely. Their own feeling was bound to crop up.

The Cost of Cottages. THE by-laws of most local authorities relating to the building of cottages are too onerous. They exact so much in rural districts that a fair return cannot be obtained upon the outlay, and in many cases the intention to build is therefore abandoned. The Local Government Board has recently refused to allow the Maldon Rural District Council to borrow £1,600 to build six cottages at Bradwell-on-Sea, on the ground that such an expenditure would result in a charge of over 2d. in the £ on the rates, even assuming that the cottages were let at 3s. each a week and never unoccupied. Said Mr. Keywood, the surveyor: "I had to sign a certificate that these proposed cottages were in compliance with the by-laws sanctioned by the Local Government Board!" Six cottages fully meeting the requirements of L.G.B. cannot be erected for less than £266 13s. 4d. a piece. Gentlemen who have wished to build cottages in Mid-Essex and South Essex have informed us that they cannot provide cottages complying with the requirements for less than £350 or £400 a piece. Supposing a man wanted a nett return of 3 per cent. on £400, what labourer could pay the rent? On the other hand, instances have been mentioned where cottages are erected at £200, but this includes no allowance for site, cost of water-supply or architect's fees.

Clinker Brick again. COUNCILLOR COLTON, of Liverpool, has been giving some particulars of the method about to be adopted in that city for building cheap houses to accommodate the dispossessed slum population. Briefly, he said, the plan took the form of a concrete building made from refuse-destructor clinker. The engineer in Liverpool had perfected a method by which instead of making small bits of brick he could make the whole side of the house in one piece. The front, sides, floors, roofs were all to be made in single individual parts, hoisted into position, and then bolted together. The mouldings, the skirtings, fireplaces, &c., were also formed in the mould and stamped out under one pressure, and would be hoisted into position just as were the outer walls. The houses would be of the tenement type, three storeys high, and contain living room, two bedrooms and scullery, each having its own w.c. The cost of construction would be just about one-half of those they were building now in brick, and they could be erected at the rate of one house per day. He anticipated, if the experiment proved satisfactory, that the goal for which they had been striving, viz., rents at 1s. per room per week, would be achieved.

BUILDING BY-LAWS REFORM ASSOCIATION.

THE first general meeting of this Association was held at 45, Parliament Street, last week, Lord Robert Cecil, K.C., in the chair.

Sir William Chance, Bart., submitted a report from the Provincial Council recommending articles of association for adoption. Considerable discussion followed, in which Mr. A. H. Clough, of Ringwood; Mr. Mark H. Judge, Mr. Arthur Newbold, of Brighton; Mr. E. D. Till, of Dartford; Mr. Thackeray Turner, Mr. H. G. Willink, of Reading; Mr. Stephen Rowland, of Cranleigh; Mr. F. F. Kirby, of Winchester, and Mr. R. A. Read, hon. sec., took part. Ultimately the articles of association were adopted unanimously, the first of which provides that the objects of the Association shall be—"(*a*) where building by-laws or regulations are in force, to promote amendments, so that official control of private buildings shall not extend beyond the demands of public health and safety, and thus to prevent encroachments on individual liberty; (*b*) where it is intended to adopt such by-laws or regulations, to secure that those adopted shall satisfy the above conditions; (*c*) to assist as far as possible in suitable cases those who may be unduly interfered with by building by-laws or regulations."

The following gentlemen were elected as the first Council of the Association:—Mr. W. M. Acworth, Lord Robert Cecil, K.C., Sir William Chance, Bart., Mr. A. H. Clough, Mr. A. Graham, Mr. W. Henman (Birmingham), Mr. Mark H. Judge, Mr. E. L. Lutyens, Mr. Arthur Newbold, Dr. G. V. Poore, Mr. H. A. Powell, Mr. L. W Ridge, Mr. R. W. Schultz, Mr. T. M. Shallcross (Liverpool), Mr. St. Loo Strachey, Mr. E. D. Till, Mr. Thackeray Turner, Mr. C. Turnor, Mr. H. J. Willink and the Hon. Percy S. Wyndham.

Surveying & Sanitation.

Macadam roads.—Mr. J. Patten Barber, the president, in delivering his inaugural address to the Society of Engineers, said great improvements had been made in the condition of roads since the establishment of county councils and the maintenance had been under the control of qualified engineers. The use of more suitable stone, broken to proper sizes, steam rolling, and the more judicious application of binding material, had largely contributed to the improved state of the main roads. It was impossible to fix the stones on a macadam road by the methods advocated by critics of making them "unite by their own angles"; even in McAdam's time the fixing of the stones was accomplished by the small particles ground off the loose stones by the traffic. The addition of suitable binding material was necessary even when a steam roller was used for consolidating the new coat of stone with which a macadam road was prepared. Tar macadam formed a cleaner and smoother surface than ordinary macadam, but was more slippery and not suitable for very heavy traffic; it made an ideal road for cyclists and motorists, but its great cost made the formation of a track along the roads improbable.

Competition Reform Society.—The committee of this society disapproves of the existing conditions of the competitions for the Technical School, Blackpool and the Infectious Hospital, St. Mellons, Newport, Mon., but is endeavouring to obtain a revision of the same. Members are requested to abstain from competing unless they receive a further communication to the effect that the conditions have been satisfactorily revised.

NATURAL LIGHT TO BASEMENTS.

By B. WYAND.

THE commercial value of a basement room is so considerably enhanced by any additional natural light afforded that the expenditure of a few extra pounds for that purpose will always bring a fair return. Whether a basement be used for living, manufacturing, office or storage purposes, the demand for light is just as keen; and basements where artificial lighting need not be resorted to until the fading of daylight is universal will find tenants at any time.

An inexpensive means of providing additional light to a basement room is given in the sketches accompanying this article. Fig. 1 shows a basement room abutting upon an area and looking out upon a dead wall. The ceiling-line of this room is practically level with the pavement, and in the figure the window is kept to its full height—at a height which would, as a matter of fact, necessitate the threading of a short length of rolled steel joist, or some other contrivance, through those ends of the floor joists which run above the window openings.

In Fig. 2 is shown precisely the same room, area and wall, but with the window carried well above pavement-level, and giving the room a very considerable increase of natural light. The floor-joists are trimmed at the window openings just as they would be for a fireplace, the trimmed space being filled in with pieces of 3in. by 2in. or other light stuff to carry the lathing and plaster or match-lining with which the soffit is to be covered. Fig. 3 shows (*a*) the trimmed space with filling-pieces and (*b*) the floor when laid. The objection to this mode of dealing with a floor has been that small bulkheads are formed over those portions of the floor beneath which come the basement windows; and this is met in my plan by the provision of window seats, which in their turn entirely cover the bulkheads. It may still be objected that these window seats would in themselves be unsightly; but when I say that I have seen them just as described in one of the finest block of flats in London—Albert Court, Knightsbridge—I think that that contention also is met. As a matter of fact, neatly panelled, and finished to match the other work in the room, they form quaintly attractive features, which the tenants contrive to render still more attractive by rugs, cushions and general "drapery."

In the plan I have shown the trimming is applied to a floor with wooden joists running from front to back of the building; but with joists thrown across, or with concrete or any other kind of floor, the idea is just as easy of adoption. In the case of shop property the bulkheads might not be objected to, or, if they were, countering or show-casing might take the place of the window seats. Where an area is covered with pavement lights the same idea is practicable so long as the lights are on private ground and no objection is made by the local authority to their being raised to a level with the added height of the windows. They could then be thrown back at an angle from window head to pavement level, or built square out from the head with a return to pavement level, the prisms being arranged to throw the light right back into the room; and, either way, a considerable increase of light would be obtained.

Correspondence.

"Buildings to Measure around Bolton."

To the Editor of THE BUILDERS' JOURNAL.

LONDON, S.W.

SIR,—I think G.A.T.M. is in error in stating that there is a fine Norman doorway and half-timbered priest's house at Prestwich in reply to the enquiry of "Bolton, Lancs." on p. 395 of your issue for January 28th. No doubt this should read Prestbury, near Macclesfield. There is a fine old church at Prestwich, but I question whether there is any Norman doorway or other work worth measuring.—Yours truly, W. EATON.

I had first written Prestbury in my answer to "Bolton, Lancs," that being my recollection of the name of the beautiful little place I visited some years ago; but on referring to a Gazetteer, came to the conclusion that I was wrong. I am much obliged to Mr. Eaton for his correction. G. A. T. M.

Garden Cities.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—This company, as many of your readers probably know, has been formed to acquire an option of purchase of a large estate and to then develop it in the best manner as an entirely new industrial and residential town. To carry out the scheme effectively electrical power and light works, water-works, roads and many other enterprises involving an outlay of large capital and the employment or many workmen will be necessary at an early stage. These workmen will need to be housed, and it will be most desirable to house them on the estate, and in permanent as distinct from temporary dwellings. Therefore, one of the first things to be done will be to erect a considerable number of cottages. Now it is most desirable that those cottages should be planned in the best possible way and afford the best accommodation consistent with their being let at a rent which will place them within the means of the workmen employed. The company will probably assign to each cottage a space of not less than 220 sq. yds.; but as this represents more garden ground than many would care to deal with, the idea occurs to me that a large part of the back garden space might be thrown into a central quadrangle and let in allotments to those who require it.

My object in writing this letter is in the hope of inducing some of your readers to make useful suggestions towards the carrying out of such a plan; but I need hardly say that the project will afford scope not only for the building of workmen's cottages but for superior residences and for the erection of large buildings, and these so arranged with open spaces around them as to secure a combined and harmonious effect rarely seen in our English towns.—Yours faithfully,

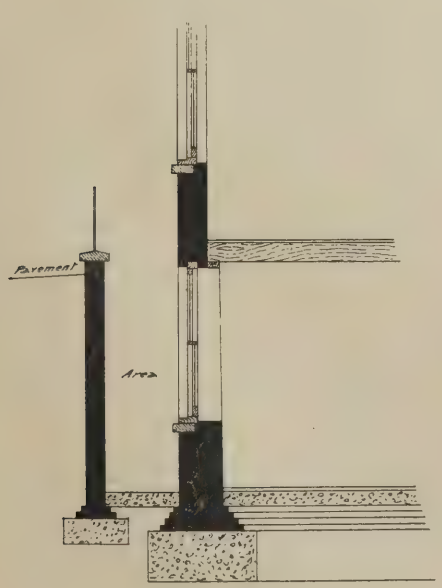
EBENEZER HOWARD,
Director and Manager.
Garden City Pioneer Co., Ltd.,
347-351, Birkbeck Bank Chambers,
Holborn, W.C.

Engineering Notes.

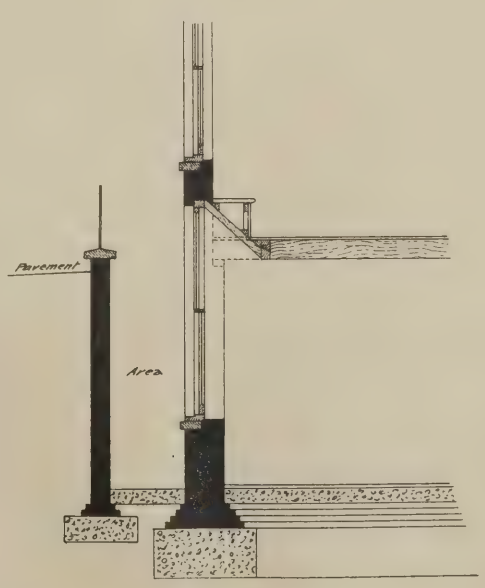
Change of Address.—The address of "Electricity" has been removed from 2, Exeter Street, London, W.C., to 36, Maiden Lane, Covent Garden, W.C.

The new Board Schools, Trefriw, North Wales, have been supplied by Messrs. E. H. Shorland & Brother, of Manchester, with their patent Manchester stoves, Manchester grates, exhaust roof ventilators and inlet tubes.

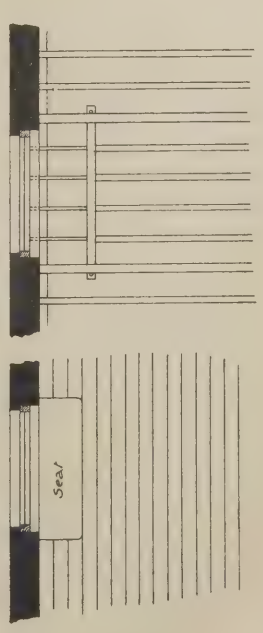
The Navy League Training Home, Liscard, Cheshire, is being fitted with the latest improved hot-water heating apparatus by Messrs. John King, Ltd., engineers, Liverpool, who have also in hand the ventilation and hot-water supply.



—Fig. 1—



—Fig. 2—



—Fig. 3—

—Scale of Feet—
1 0 1 2 3 4 5 10

Keystones.

St. John's Church, Dewsbury Moor, is about to undergo extensive renovation and enlargement.

Alterations at Malvern College.—The sanatorium has been re-arranged and enlarged, at a cost of £1,200; a new hot-water system had been put in the college, at a cost of about £600; and the old chapel has been converted into class-rooms, a museum, and a music-room, at a cost of £625.

New Wesleyan Church Buildings at Ilkley.—In the competition recently decided for this scheme the plans of Messrs. Adkin & Hill, of Bradford, were placed first, those of Mr. Danby, of Leeds, and Messrs. Morley & Son, of Bradford, being second and third respectively. Messrs. Adkin & Hill have been instructed to proceed with the work at once.

An Infectious Diseases Hospital, Gallowhill, for the county and burgh of Kinross has just been erected. There are four buildings, which occupy the site of about an acre, adjoining the public road, and are erected of iron and wood, on a brick foundation, on Speirs's patented system of construction. They have ample accommodation for eight patients, with administrative and outhouse blocks. The cost amounts to about £1,500. Messrs. Speirs & Co., Glasgow, were the designers and erectors, and have carried through the work in a speedy and satisfactory manner.

The Glasgow and the West of Scotland Technical College Architectural Craftsmen's Society held a meeting last Friday evening, Mr. C. E. Monro, president, in the chair. Mr. David Skinner, clerk of works, vice-president, read a paper on the construction of timber staircases. He took up the construction of one particular stair and dealt with it in detail, showing by sketches and models the methods of setting out the whole work, including the handrailing. There was a good attendance of the joiner-trade members, who all expressed their hearty appreciation of the paper.

Seaton Public Buildings.—Seaton is about to erect new public buildings facing the Station Road and the Esplanade. The site will be about 120ft. in depth and 80ft. in width. The buildings, proposed to be erected by a syndicate, include a public concert hall (which could be used for drill purposes as well), with the necessary appendages, a club-house, a masonic-hall, and offices suitable for the meetings of the Urban Council, with caretaker's quarters. The buildings will be of brick and Beer stone (the quarries being near) and tile roofs. The architect is Mr. James Crocker, F.R.I.B.A., of Exeter.

St. Mark's Campanile.—A long report on the results of the official enquiry made into the circumstances attending the collapse of the Campanile has been published. After describing the condition of the walls, as well as the damage sustained and the repairs effected at various ages, the report states that the different materials composing the walls imperfectly cohered, but that there was no subsidence, the foundation being in excellent condition. It attributes the chief cause of the collapse to the cutting of a trench to remove some stonework that had been worn by rain immediately over the Logetta without the adoption of the required technical precautions. The report holds the official district architects for the preservation of monuments and the cathedral technical authorities to be equally responsible for the collapse of the Campanile, but admits as an extenuating circumstance the conviction which generally prevailed of the perfect stability of the famous tower.

The Temple Church.—The reparation of the belfry tower of this famous and interesting church is about to be put in hand.

An Eccles Competition.—Twenty-four sets of plans were received by the Eccles Town Council for the laying-out of the insanitary area, and were adjudicated upon by a sub-committee, assisted by Mr. John Holden, F.R.I.B.A., of Manchester, who awarded the prizes of £50, £30 and £15 to Mr. George Meek, 20, Lancaster Chambers, St. Ann's Square, Manchester; Mr. George Westcott, King Street, Manchester; and Messrs. Mee & Hooley, Victoria Street, Manchester, respectively.

Architectural Association of Ireland.—The fourth technical demonstration of the above society was held on Thursday, February 5th, at the premises of Messrs. T. & C. Martin, 82, North Wall, Dublin, the subject being "Carpentry and Joinery." This demonstration was supplemental to that held the previous Thursday, when the various qualities and defects of timber were explained. The members were conducted round the workshops, and the uses of the various planing, moulding and mortising machines were pointed out, work being executed for their benefit. There was a fair attendance, and a hearty vote of thanks to Messrs. John & Frank Martin terminated the proceedings.

International Fire Exhibition.—An influential meeting, attended by experts in fire-prevention and fire-brigade work from all parts of Germany, was held last week at Berlin to decide as to the part to be taken by Germany in the impending International Fire Exhibition. It was decided that the Ducal Hall of the Earl's Court Exhibition should be entirely devoted to the German section of fire-appliances and fireproofing materials, and a number of firms immediately resolved to exhibit extensively. The chairmanship of the fire-brigade section of the German group will be occupied by Chief Officer Westphalen, and that of the building department by Privy Councillor Stübben. There will also be an important German loan section of German works of art, engravings and fire relics, particularly relating to the great Hamburg fire of 1842.

Salford's New Fire Station.—This building, upon which £26,000 has been spent, is now approaching completion. The main centre block contains the rooms for the fire engines. Behind the engine-rooms are the stables. Close to the engine-room is the call-office and duty-room, and behind that is the parade and instruction-room. The wing projecting to the right of the main block is set apart as the chief officer's house, and the corresponding wing on the left contains the workshops. There are houses at the back of the station for seventeen married men and their families, and land has been reserved on which, if necessary, other houses may be built. The equipment of the new station will be most up-to-date, all the latest appliances having been introduced.

The London Building Act (Amendment) Bill).—The various wards of the City of London are organizing a strenuous opposition to the London Building Act (Amendment) Bill, which will be introduced into Parliament next session. It is not disputed that the calamitous fire in Queen Victoria Street, last year, when ten lives were lost, may call for some alterations in buildings with a view to ensuring if possible the saving of life, but the proposals now made by the London County Council are regarded as arbitrary. The commercial interests of manufacturers and other persons owning or occupying property in the county of London will, it is said, be so seriously affected that it has been decided to ask the Lord Mayor to call a meeting of the citizens at the Guildhall in order that the withdrawal of the Bill may be obtained.

A New Society.—The Aberdeen and Glasgow Ecclesiological Societies have now been united under the name of the Scottish Ecclesiological Society. The objects of the new society will be the study of the principles of Christian worship and of church architecture, of the allied arts which minister thereto, and also the diffusion throughout Scotland of sound views and the creation of a truer taste in such matters.

Swanwick Church Extensions.—The extensions which are being carried out at St. Andrew's Church, Swanwick, are now almost completed. The main feature of the work has been the adding of a large square tower, which gives a fine effect to the whole edifice. A peal of five bells, which have been made at the Loughborough Bell Foundry, have also been fixed in the tower, the weight of the largest bell being about 16cwt. After the building operations are finished the church will be thoroughly cleaned and renovated.

Business Premises, Aberdeen.—Plans have been prepared for a new block of buildings in Union Street by Mr. R. G. Wilson, architect. The building will be four storeys high from the street, while on the basement floor the firm will carry on their manufacturing business and also utilize it as workshops. The contracts for the new building have been settled, and the builder has already commenced excavation operations at the back portion of the old buildings. When completed, the premises will be a splendid improvement to the north side of Union Street, and will add much to the uniformity of the buildings in that quarter. The building is estimated to cost about £6,000.

New Patents.

The following specifications were published on February 5th, and will be open to opposition until March 21st. A summary of the more important of them will be given next week. The names in italics are those of communicators of the inventions.

1902.—741, BARHAM, means for holding glass sheets and the like for structural purposes. 876, BROWN, automatic sewer or drain-flushing apparatus. 1,035, THOMPSON (firm of *H. Sulzbach & Co.*), manufacture of metal wall covering tablets or tiles having coloured enamelled surfaces. 1,117, MASLIN & THERYC, steam-boiler and other furnaces and heat-generating apparatus. 1,134, BOS, devices for closing or obscuring keyholes. 1,408, DAVID, scaffolding. 2,770, SIM, grates used for warming the apartments of dwelling houses and other buildings. 3,414, DAVIES (*Peckover*), reciprocating machines for stone cutting. 4,006, KNÖPFEL, metal casing or frame for window openings and the like. 4,441, SPENCER, chimney cowls. 4,604, FERRELL, wood preserving and fireproofing. 4,976, FIRTH, apparatus for heating water. 5,155, HEENAN, apparatus or furnaces for burning refuse matter and other materials. 5,392, MCLEAN, production of artificial blocks and slabs. 5,901, NIELSEN, chimney tops. 6,781, REID, paint and other brushes. 9,247, RAMSDEN, apparatus for sewage tanks and for automatically working of such or the like. 16,548, WATKINS & SCREETON, composition for the cleansing of painted, varnished or polished surfaces, and the like. 17,009, BOSSON & BOSSON, lever compression mechanism for brick presses and the like. 19,493, IMRAY (*Carborundum Co.*), manufacture of refractory bricks and like articles. 20,952, CLARK & TURNER, construction of joiners' cramps. 22,746, BONTEMPS, ventilating and air moistening apparatus for factories and the like. 24,789, SCHRÖTER, apparatus for rescuing persons from buildings in case of fire. 26,516, BRASSINGTON, ventilators, chimney pots and the like.

Builders' Notes.

The Sixth Annual Dinner of the Peterhead Master Builders' Association was held recently in the Royal Hotel. Mr. J. B. Dickie, the president of the Association, was chairman over a company of about forty gentlemen; while Mr. Hadden, builder, officiated in the vice-chair.

Tiles for Lord Milner's Carriage.—We understand that Messrs. W. Godwin & Son, of Lugwardine Works, Withington, have been favoured with the order for tiles for paving a saloon carriage for the use of Lord Milner, High Commissioner for South Africa. The special saloon carriage for the use of his Lordship is being built by the Metropolitan Railway Carriage and Waggon Co., Lancaster.

Lime and Cinder Bricks.—Experiments are being conducted at the Leeds Corporation Gasworks at New Wortley in the making of bricks from spent lime and cinder. So far as can be ascertained they promise to be successful. By the process now being tried an apparently serviceable class of brick has been produced. It is the colour of cinder and "rings like a bell." Paving setts and flags may be made by the same process.

Builders' Foremen.—The annual meeting of the Builders' Foremen's Association was held recently at the Memorial Hall, Farringdon Street, E.C. Mr. B. T. Price, the vice-president, who presided, said that though the building trade was slack at this time of the year and some of the men unemployed in consequence, they all had reason to be proud of the present satisfactory position of the Association, the balance in hand having considerably increased. During the evening several new members were elected, including Mr. W. Brown, foreman of the works of the new building of Charing Cross Hospital.

The Carpenters' Company, following their action in past years, have arranged for a series of lectures on matters connected with building to be delivered in their hall in London Wall, on Thursday, February 19th, and the four succeeding Thursdays, at 8 p.m. The subjects will be as follows:—February 19th, "Ancient Rome in 1903," by Prof. R. Elsey Smith; February 26th, "Where Town and Country meet," by Dr. G. V. Poore; March 5th, "Modern Furniture, Movable and Fixed," by Mr. J. A. Gotch, F.S.A.; March 12th, "Canterbury Cathedral," by Prof. T. Roger Smith; and March 19th, "The Nile Dam, Assuan, and Egyptian Irrigation," by Mr. Maurice Fitzmaurice, C.M.G. The lectures will be illustrated by lantern photographs, and in other ways.—The Carpenters' Company have recently appointed Mr. J. Hutton Freeman to be their clerk, in the room of Mr. Stanton W. Preston, who retires after twenty-five years' service.

The Sheffield Master Painters' and Decorators' Association held a meeting recently, when Mr. William Brockwell delivered a lecture on "Varnish and its uses." The lecturer made a careful survey of the different gums used in the manufacture of varnishes, giving the countries and districts from where the same are gathered. He also pointed out that the gums were not, as generally supposed, extracted from the living trees, but from fossil or semi-fossil resins found in deposits a few feet from the ground, these deposits having been formed by the gums having trickled down into the earth from primeval trees, and in many instances found where no outward signs of the prehistoric vegetable origin remains. He made special mention of the fine old Italian amber varnish, giving as examples the fine varnish used on old violins the preparation of which is a lost art. The lecturer held the opinion that we had the finest makers of varnish in England.

The York Master Builders' and Contractors' Association held its annual meeting last week. Mr. Councillor Mansfield (retiring president of the Yorkshire Federation of Building Trades Employers) was re-elected president. Mr. R. Dent was elected vice-president; Mr. H. Coleman, treasurer; and Mr. C. Dent, secretary.

Concrete Paving. – Messrs. W. B. Wilkinson & Co., Ltd., of 1, Victoria Street, S.W., are at present laying their granite concrete pavings on the whole of the six floors of the Army and Navy Auxiliary Co-operative Society's new factory, Rochester Row, Westminster, under the instructions of Mr. John Darch, the society's architect. The work is being done at a very rapid rate, about 1,000yds. per week.

Weston-super-Mare Master Builders' Association.—The annual dinner in connection with the members and friends of the above took place at Glass's Restaurant, when a company of about eighty sat down to a first-class repast, under the presidency of Mr. Charles Addicott (president-elect), the vice-chair being filled by Mr. E. S. Stradling (vice-president of the association). A most enjoyable evening was spent, with the several intervals filled in with songs, recitations, &c.

The death is announced of Mr George Duguid, builder, Aberdeen. Mr Duguid, who was sixty-one years of age, was a native of Monquhitter, but came to Aberdeen early in life and served his apprenticeship to the building trade, afterwards starting on his own account. He carried on a large and successful business. Among the public buildings Mr Duguid erected were the prison at Craiginches, the police office in Lodge Walk, St. Margaret's Episcopal Church, Braemar, and the Aberdeen Station Hotel.

Fireproof Floors.—The tenders of the Columbian Fireproofing Co., Ltd., 37, King William Street, E.C., have been accepted for the fireproof floors at the new electric generating station in Beech Street, Barbican, for the Charing Cross and Strand Electricity Corporation, Ltd. Mr. W. E. Clifton, F.R.I.B.A., F.S.I., is the architect, and Messrs. Lawrance & Sons are the builders. This firm's tenders have also been accepted for the fireproof roofs at the Metropolitan Cold Storage Co.'s premises in Charterhouse Street, E.C., the architect of which is Mr. C. Stanley Peach, F.R.I.B.A., and Messrs. Whitehead & Sons the builders.

Scaffolding for Skyscrapers.—Something new in the way of scaffolding has been recently used in the erection of a block of skyscrapers in New York, by which work is said to be accomplished more quickly and at a much less cost than by the old system of scaffold poles and ropes. A Mr. Clair Foster is responsible for the device, which briefly consists in hanging the scaffold and its platforms from the top of the steel skeleton of a skyscraper, instead of building them up from the ground around it. The new scaffolding is not used in putting together the steel skeleton, but only in facilitating the stonework and outside walls. At the top of the steel building—or indeed from any storey of it—is fixed an outlook or metal platform, from which are hung cables protected by thin iron bars bolted together. These cables support the platforms on which the men work. The planks can easily be shifted as the work proceeds to any desired level, and fresh platforms can be erected without disturbing the masons at their work; while the cables are so light that they may be left hanging to the end of a job, affording the carvers and others a chance to do their work at any time. The structure whereon this new device has been used is eleven storeys in height, and is the first example of a skyscraper to which it has been applied.

Enquiries Answered.

The services of a large staff of experts are at the disposal of readers who require information on architectural, constructional or legal matters. Questions should in all cases be addressed to the Editor. The querist's name and address must always be given, not necessarily for publication.

Borough Surveyor's Duties.

HAMILTON, N.B.—ASPIRANT writes: "Kindly state the principal duties of a burgh surveyor of a Scottish town of, say, 5,000 inhabitants; also state what books would be useful, not too expensive, with name of publisher."

The first question is somewhat vague. Are there many Scottish burghs of 5,000 inhabitants? On this side of the border we should consider a place of 5,000 inhabitants a large village. In any case, the duties would be exactly what the authority chose to make them. It would depend also on what municipal enterprises the authority had undertaken, and the standing of the authority itself. You had better consult "The Municipal and Sanitary Engineers' Handbook," by H. Percy Boulnois, M.Inst.C.E. (B. T. Batsford, 94, High Holborn, London, W.C., price 12s.).

A Legal Question.

ULTRAMARINE writes: "A contract was made and carried out for certain plumbing and drainage work for a villa in a small country town. The contractor was a mechanical engineer. The agreement between the parties was similar in conditions to that sanctioned by the Royal Institute of British Architects. The contractor was to uphold the work for a period of three months after completion, during which time 10 per cent. of the contract price was to be withheld. The work was duly proceeded with, under the superintendence of the architect. Towards the completion of the work, the architect made an inspection and had occasion to find fault. He thereupon wrote to the contractor asking him to remedy the defects, and concluding his letter thus, '*With the exception of these defects the work is satisfactory.*' At the end of the three months period of retention the architect again inspected the work and found one of the manhole covers broken. On making further enquiries he ascertained that the contractor had substituted inferior covers for the manholes, the weight of each of the covers supplied being two stones less than that specified. Under these circumstances, would the architect be entitled to withhold the final certificate. In the event of the contractor taking legal proceedings for balance of the amount of the contract, would a judge be justified in finding in his favour on the grounds that the architect had already given a written certificate to the contractor stating the work was satisfactory?"

The law of the case is very simple. If under conditions of the class mentioned by querist an architect issues a "*final* certificate" the contractor forthwith becomes entitled to the balance due to him by his employer. In applying the law to this particular case we have merely to consider whether or not the architect has issued his "final certificate." In my opinion he has not. The document mentioned by querist does not appear to have been a certificate at all, but was merely a letter pointing out certain defects and incidentally stating that the balance of the work was satisfactory. Such being the case, we have next to consider is the architect entitled to withhold his "final certificate." As the work has not been completed "to his satisfaction," and as the contractor seems to have been guilty of an action of almost a fraudulent nature in substituting inferior covers for the manholes (I presume)

after the architect had inspected the works, I think the architect has a perfect right to refuse his certificate. He should, however, inform the contractor of his reasons for so doing, so as to enable him to do the necessary works or make the proper alterations to entitle him to it. Querist will find the subject of architects' certificates fully discussed in a paper, "The Law and the Architect," in our issue for December 31st, 1902, p. 323. W. JOHNSON-ROBERTS.

Savoy Chapel.

LONDON, S.W.—B. B. H. writes: "Can you give me any information concerning the Chapel Royal, Savoy? I wish to measure it for the Final R.I.B.A., and would like to know if leave is given, and whom to apply to. Can you tell me anything of the history of the building?"

Savoy Chapel was built in 1505 of square stone and boulders, with a low bell-tower and Tudor windows. The chapel was originally dedicated to the Saviour, the Virgin and St. John the Baptist, but when the old church of St. Mary-le-Strand was destroyed by the Protector Somerset the parishioners united themselves to the precinct of the Savoy, and the chapel acquired the name of St. Mary-le-Savoy. The chapel was restored chiefly through the instrumentality of George IV. The interior was destroyed by fire in 1843; the fine ceiling was restored and emblazoned by Willement, by whom it has been minutely illustrated. The altar screen, said to have been the work of Sir Reginald Bray, was restored by Smirke in 1843. In July, 1864, the chapel was again destroyed by fire, save the walls; the altar screen, east window and ceiling were entirely consumed. It has been again restored at a cost of £5,000, under the superintendence of Smirke; the roof has been embellished much after the design of that which was destroyed, but different in detail. (Abstracted from Timbs's "Curiosities of London.") It is not proved that the present chapel (that of 1505), built for the purposes of the hospital is erected on the site of the old palace chapel in which Wyclif had preached to John of Gaunt. But there is every likelihood of the consecrated site being identical in both cases. The chapel became famous for the Savoy Conference between bishops and Presbyterians for the revision of Common Prayer Book, soon after the Restoration. Later it was notorious for clandestine marriages, as many as 1,190 weddings took place in 1755! The church is extra-parochial, and the chaplain or minister, Mr. Wilkinson, took upon himself to issue special licences. He was tried, convicted and transported in 1757, but he died before he reached America. A gallery existed up to 1860, but was then removed by Smirke. Most of the ancient monuments, of which there were many, were destroyed in the fires, but fragments remain. The two last restorations have been at the expense of Queen Victoria. The font was designed by Blore. Near by is a centre compartment of a triptych painted for the Palace in the fourteenth century, apparently of Siennese School, lost and recovered only in 1876. The chapel is a single rectangular chamber, 89ft. 2in. internally in length, and 23ft. 9in. wide throughout. The altar is at the north. Some of the above particulars are abstracted from Mr. Loftie's "Memorials of the Savoy," published by Macmillan in 1878. I believe the chapel was re-decorated a few years ago, and that the chaplain would be the officer to be approached *re* measuring. The chaplain is the Rev. P. Williams Wyatt, and his address is Austin Canons, Bedford. He would no doubt give you information as to the hours the chapel is open, and the address of Mr. Chapman, the verger.

F. H. MANSFORD.

Examinations.

DULWICH.—STRIVER writes: As any certificates I might take during the next six or seven months would materially advance me, I should be obliged if you will inform me what examinations, scholarships, &c., are open to me. I have studied building construction for six months, and am a good bricklayer and cutter in all branches."

It is too late now to join classes for instruction and subsequent examination in building construction under the Science and Art Department. Probably this would be the right thing to do next winter. Meanwhile the Sanitary Institute examinations seem to be the only ones open to our enquirer. Particulars can be obtained from the secretary, 74, Margaret Street, W.

G. A. T. M.

Draughtsmen at H.M. Office of Works.

NORTHUMBERLAND.—REX writes: "What is the salary of a draughtsman temporarily employed in H.M. Office of Works? Has he to submit himself to a medical examination before obtaining such a situation? If such a draughtsman got nominated for an examination, and should he be successful, would he afterwards have to be medically examined? What other situations in the Civil Service would I be eligible for, having served three years with an architect?"

There is no standard salary. If you apply, state what you think you are worth, making allowance for the fact that living is at least 50 per cent. dearer in London than in a small country town, and send copies of testimonials, saying that specimens of your work will be forwarded if desired—if you have any specimens to show, such as R.I.B.A. "Testimonies of Study." There is no medical examination for temporary draughtsmen, but a medical test has to be passed in the event of being successful in the competitive examination for permanent employment. A printed sheet stating the usual grounds for rejection on medical examination is issued by the Civil Service Commissioners, who will supply a copy on application to their secretary, Burlington House, W. You are also eligible to compete in open examinations for assistant surveyors, Royal Engineers; assistant civil engineers, Admiralty; and assistant surveyors, Admiralty. Long and steady preparation is necessary, as the competition is always severe. The Secretary of the Civil Service Commissioners will supply particulars, while past examination papers can be obtained through any bookseller, or direct from the publishers, Messrs. Eyre & Spottiswoode, East Harding Street, Fetter Lane, E.C.

G. A. T. M.

Steam Disinfectors.

CREDITON.—J. E. B. writes: "(1) How does steam operate in the disinfection of infected clothing, bedding and the like? (2) Could you give me a short description of the mechanism of a steam disinfecting apparatus, and the method of using it; also a definition of the terms 'current steam' and 'super-heated steam'?"

(1) The disinfection of clothing, bedding, &c., can be more quickly effected by steam than by any other agent. This is due to the fact that steam has a temperature corresponding to its pressure, so that articles treated with high-pressure steam are subjected to a degree of heat which would be impossible with the use of dry hot air without injury. The Alliott & Paton's patent apparatus employs high-pressure steam, and has in addition fittings capable of producing a vacuum previous to the admission of the steam, thus removing the air from the interstices of the goods and allowing pure steam to reach the very centre of the bundles. (2) "Current steam" is, as its name indicates, simply a current of steam flowing over and round the goods. It is only employed in the cheaper forms of disinfectors. "Super-heated steam" is practically a gas, being steam the temperature of which has been raised by the addition of heat without contact with water. In this condition, it has been shown by many experiments that steam is no more efficacious as a disinfecting agent than hot air at the same temperature, and the days of disinfection by hot air are long since past. High-pressure saturated steam is used in the apparatus designed by Washington Lyon, and in the later improved form of the Lyon apparatus, known as the Alliott & Paton patent. It possesses the necessary high temperature, and is penetrative to a much greater degree than current steam or superheated steam. Combined with the application of the vacuum in the Alliott & Paton's patent machine, rapid penetration is rendered certain and perfect sterilisation ensured.

MANLOVE, ALLIOTT & CO., LTD.

Masters and Men.

A Quarry Dispute.—In connection with the dispute between Ballachulish Quarries Company and their workmen, the latter have formally withdrawn their demand for payments once a month instead of every six weeks. They are willing to resume work on the conditions prevailing immediately before Christmas, but the Company still insist upon their signing an agreement which would place in the hands of their employers such matters as the appointment of a medical officer and the supply of coals, &c.

New Companies.

Anglo-Iberian Electric Light and Power Co., Ltd.

Registered to carry on in Spain or elsewhere the business of an electric light and power company. Capital £10,000 in £1 shares.

Canadian Association, Ltd.

Registered to carry on, in Canada or elsewhere, the business of sawmill proprietors, timber growers and merchants, woodworkers, &c. Capital £3,000 in £1 shares.

Orston Plaster, Cement and Brick Co., Ltd.

Registered to acquire, develop and turn to account brick and plaster works, and to carry on the business of brick, tile, cement, gypsum, plaster, pottery, earthenware, china, terra-cotta and ceramic ware manufacturers, builders' merchants, &c. Capital £40,000 in £1 shares. The first directors are R. E. Middleton, J. E. Darbishire and H. S. Fleming.

Wickford Syndicate, Ltd.

Registered to lease from the Wickford Brick and Tile Co., Ltd., or others, certain freehold hereditaments in the parishes of Downham and South Hanningfield, Essex, and the business of brick and tile manufacturers carried on thereupon, and to carry on the business of brick, tile and pipe manufacturers, potters, builders' merchants, &c. Capital £1,000 in £1 shares. Registered office: 13, St. Helen's Place, E.C.

J. A. Hewetson & Co., Ltd.

Registered to carry on the business of builders' merchants, timber importers and merchants, sawmillers, joinery and lath manufacturers, slate importers and merchants, slaters, brick, tile, drain pipe, chimney pot and firebrick manufacturers and merchants; tilers, tile layers, ironfounders, ironmongers, quarry owners, &c. Capital £10,000 in £1 shares. Registered office: Dansom Lane, Hull.

F. J. Gane, Ltd.

Registered to acquire and carry on the business of a furnishing and general ironmonger, carried on by F. J. Gane, at the corner of Monk Street and High Street, Tutbury, Staffordshire. Capital £8,000 in £10 shares. The first directors are W. J. Lyon, H. Newton, R. Peach and F. J. Gane. Registered office: The Junction of High Street and Monk Street, Tutbury, Staffordshire.

North-Western Electricity and Power-gas Syndicate, Ltd.

Registered to promote or aid in promoting a Bill for carrying on throughout Cheshire, that portion of Staffordshire lying north of the southern boundary lines of the rural districts of Tutbury, Uttoxeter, Stafford and Gnosall, that part of Derbyshire lying northwest of the boundary between the unions of Chapel-en-le-Frith and Bakewell, that portion of Flintshire comprising the borough of Flint, the urban districts of Buckley, Connah's Quay, Mold and Holywell, and the rural districts of Holywell and Hawarden, and that portion of Denbighshire comprising the borough and rural district of Wrexham, and elsewhere, the business of an electricity and power-gas supply company in all its branches, and to carry on the business of electricians, electrical and general engineers, suppliers of electricity and power-gas for any purpose, &c. Capital £10,000 in £100 shares. The first directors are T. O. Callender, J. H. Gartside, R. Heath, F. Rigby, E. Schweich, T. W. Twyford, A. Seymour-Jones, J. H. Darby and J. Harding.

Current Market Prices.

FORAGE.

		£	s.	d.
Beans	per qr.	1	9	9
Clover, best	per load	4	10	0
Hay, best	do.	3	15	0
Sainfoin mixture	do.	3	15	0
Straw	do.	1	8	0

		£	s.	d.	£	s.	d.
Beans	per qr.	1	9	9	1	12	3
Clover, best	per load	4	10	0	5	0	0
Hay, best	do.	3	15	0	5	10	0
Sainfoin mixture	do.	3	15	0	4	5	0
Straw	do.	1	8	0	1	18	0

OILS AND PAINTS.

Castor Oil, French	per cwt.	1	3	11		—	
Colza Oil, English	do.	1	4	6		—	
Copperas	per ton	2	0	0		—	
Lard Oil	per cwt.	2	13	0	2	14	0
Lead, white, ground, carbonate	do.	1	4	10		—	
Do. red	do.	1	0	4½			
Linseed Oil, barrels	do.	1	5	0		-	
Petroleum, American	per gal.	0	0	5⅜		—	
Do. Russian	do.	0	0	4¾	0	0	4⅜
Pitch	per barrel	0	7	0		—	
Shellac, orange	per cwt.	6	3	0		—	
Soda, crystals	per ton	3	2	6	3	5	0
Tallow, Home Melt	per cwt.	1	10	9		—	
Tar, Stockholm	per barrel	1	1	6		—	
Turpentine	per cwt.	2	2	0		—	

METALS.

Copper, sheet, strong	per ton	67	0	0		—	
Iron, Staffs., bar	do.	6	5	0	8	10	0
Do. Galvanised Corrugated sheet	do.	11	5	0	11	10	0
Lead, pig, Soft Foreign	do	11	10	0	11	12	6
Do. do. English common brands	do.	11	15	0	11	17	6
Lead, pig, English 3lb. per sq. ft. and upwards	per ton	13	10	0		—	
Do. pipe	do.	14	0	0		—	
Nails, cut clasp, 3in. to 6in.	do.	9	5	0		—	
Do. floor brads	do.	9	0	0		—	
Steel, Staffs., Girders and Angles	do.	5	15	0	6	5	0
Do. do. Mild bars	do.	6	10	0	7	0	0
Tin, Foreign	do.	129	15	0	130	5	0
Do. English ingots	do.	131	0	0	132	0	0
Zinc, sheets, Silesian	do	23	10	0		--	
Do. do. Vieille Montaigne	do.	23	10	0		—	
Do. Spelter	do.	20	2	6	20	7	6

TIMBER.

Soft Woods.

		£	s.	d.	£	s.	d.
Fir, Dantzic and Memel	per load	1	13	0	3	0	0
Pine, Quebec, Yellow	do.	5	5	0	6	5	0
Do. Pitch	do.	3	0	0	3	4	0
Laths, log, Dantzic	per fath.	4	10	0	5	10	0
Do. Petersburg	do.	7	5	0		—	
Deals, Archangel 2nd & 1st	per P.Std.	12	10	0	14	0	0
Do. do. 4th & 3rd	do.	10	5	0	12	15	0
Do. do. unsorted	do.	5	12	6	6	10	0
Do. Riga	do.	6	15	0	12	10	0
Do. Petersburg 1st Yellow	do.	10	10	0	11	5	0
Do. do. 2nd Yell.	do.	9	0	0	17	5	0
Do. do. White	do.	7	10	0	11	10	0
Do. Swedish	do.	5	15	0	16	15	0
Do. White Sea	do.	12	15	0	15	5	0
Do. Quebec Pine, 1st	do.	17	15	0	18	5	0
Do. do. 2nd	do.	12	0	0	18	5	0
Do. do. 3rd &c.	do.	8	15	0	13	15	0
Deal, Canadian Spruce 1st	per P. Std.	—			11	10	0
Do. do. 3rd & 2nd	do.	9	12	6	10	5	0
Do. New Brunswick	do.	7	15	0	8	0	0
Battens, all kinds	do.	6	10	0	12	5	0
Flooring Boards 1in. prepared, 1st	per square	0	10	9	0	12	9
Do. 2nd	do	0	9	3	0	10	6
Do. 3rd &c.	do	0	8	3	0	9	6

Hard Woods.

		£	s.	d.	£	s.	d.
Ash, Quebec	per load	3	12	6		—	
Birch, Quebec	do.	3	12	6	3	17	6
Box, Turkey	per ton	15	0	0	20	0	0
Cedar, Cuba	per ft. sup.	0	0	3⅜	0	0	5
Do. Honduras	do.	0	0	4⅜		—	
Do. Tobasco	do.	0	0	4⅜		—	
Elm, Quebec	per load	4	0	0	5	2	6
Mahogany, Average Price for Cargo, Honduras	per ft. sup.	0	0	5⅝		—	
Do. African	do.	0	0	4⅜		—	
Do. St. Domingo	do.	0	0	3¾	0	0	6
Do. Tobasco	do.	0	0	4⅜		—	
Do. Cuba	do.	0	0	4¼	0	0	8⅞
Oak, Dantzic and Memel	per load	3	5	0	3	15	0
Do. Quebec	do.	6	5	0	10	0	
Teak, Rangoon, planks	do.	16	0	0	17	10	0
Wainscot, Riga (Baulk)	do.	3	15	0	5	15	0
Walnut, Odessa Crown	do.	3	15	0	5	15	0
Do. American	per ft. cube	0	2	0		—	

Tenders.

Information from accredited sources should be sent to "The Edstor" at latest by noon on Monday if intended for publication in the following Wednesday's issue. Results of Tenders cannot be accepted unless they contain the name of the Architect or Surveyor for the work.

Addressed postcards on which lists of tenders may be stated will be sent post free on application to the Manager, BUILDERS' JOURNAL, 9, *East Harding Street, E.C.*

Aylsham.—For the restoration of St. Mary's Church, Burgh-by-Aylsham. John B. Pearce, F.R.I.B.A., architect, 15 Upper King Street, Norwich:—

	£	s.	d.
Holmes, Norwich	816	0	0
Tuddenham, Aylsham	808	13	7
Morriss, Ditchingham	692	15	6
Porter, Cromer	675	17	9
Wade, Aylsham	659	11	2
Chapman, Hanworth	647	0	0
Greengrass, Norwich	624	0	0
Hawes, Norwich	622	0	0
Scarles, Norwich	598	10	0
Watts, Buxton	555	13	0
Larner, Dereham	544	17	1
S. & F. Smith, Great Yarmouth	535	0	0
Blyth,* Foulsham	509	0	0

* Accepted.

Camelsdale.—For the erection of schools at Camelsdale, for the Fernhurst School Board. Mr. John H. Howard, architect, Haslemere:—

	£	s.	d.
B. Slade & Son, Fernhurst	1,600	0	
Chapman & Lowry, Grayshott	1,470	0	
G. Gardiner, Shotter Mill	1,427	5	
J. W. Humphreys, Godalming	1,340	0	
F. Milton, Witley	1,296	0	
Haslemere Builders, Ltd., Haslemere	1,257	0	
A. Longhurst, Chichester	1,167	0	
Walter Harding,* Shotter Mill	1,115	0	
J. Marshall, Shotter Mill	1,112	0	

* Provisionally accepted.

Clacton-on-Sea.—For alteration and conversion of two large villas into shops, showrooms and workrooms, for Mr. W. Douney, Pier Avenue, Clacton-on Sea. Mr. George Gardiner, architect, 5 Marine Parade, Clacton-on-Sea:—

	£
W. S. Moore, Clacton-on-Sea	1,450
H. Smith, Clacton-on-Sea	1,306
Ellis & Turner, 90 Aldersgate Street	1,300
H. W. Gladwell, Walton-on-the-Naze	1,224
R Myall, Clacton-on-Sea	1,090

Cobridge (Stafford).—For the erection of additional rooms and other works at the Sandbach School and Almshouse Foundation, Globe Pottery, Cobridge, for the Governors. Mr. Alfred Price, architect, Sandbach:—

	£
Birchall Brothers, Middlewich	1,645
J. J. Longden, Burslem	1,524
G. A. Foster, Longport	1,459
H. Howlett, Hanley	1,398
Bennett Brothers, Burslem	1,392
J. & C. Grant, Cobridge	1,369
T. Godwin,* Hanley	1,360

NOTE.—The allowance for old materials is deducted in each case.

* Accepted.

Devonport.—For the supply of materials in connection with and the execution complete of the overhead equipment of about 2 miles 4 furlongs 3 chains of double trolley line, together with incidental works, for the Corporation. Mr. C Chadwell, consulting engineer, 20 Victoria Street, Westminster:—

	£
Estler Brothers, London	1,258
W. T. Henley's Telegraph Works Co., London	4,166
R. W. Blackwell & Co., London (tender No. 1)	4,103
G. Hill & Co., Manchester	4,092
W. Griffiths & Co., London	4,071
W. T. Glover & Co., Manchester	4,067
St. Helens Cable Co., Warrington	4,067
British Insulated and Helsby Wires, Prescot (1)	3,967
British Insulated and Helsby Wires (2)	3,927
Siemens Brothers & Co., London	3,884
Lowden Brothers, Dundee	3,861
M. A. Shepstone & Co., London (1)	3,842
British Thomson-Houston Co., Rugby	3,813
R. W. Blackwell & Co.,* (2)	3,795
M. A. Shepstone & Co. (2)	3,725
R. W. Blackwell & Co. (3)	3,656
British Electric Equipment Co, London	3,641
R. W. Blackwell & Co. (4)	3,614
R. W. Blackwell & Co. (5)	3,591

NOTE.—Two tenders received were not to specification.

* Accepted.

Hertford.—For the erection of an hotel and shop, for Messrs. McMullen & Co., Ltd. Mr. James Farley, architect, Old Cross, Hertford:—

	£
R. A. Buckeridge	6,888
S. Worboys	6,629
G. H. Eastwood	6,500
Miskin & Son	6,500
Dupont & Co.	6,493
Wilmott & Sons	6,458
R. L. Tonge	6,300
E. West	6,277
J. Hunt	6,250
F. Newton	6,210
Lawrence & Son	6,184
Ginn & Son	6,150
W. H. Hinkins	6,149
G. Wigg,* Watford	6,098

* Accepted.

Lowestoft.—For the construction of seven groynes, and the lengthening of the four existing groynes upon the south beach at Lowestoft, Suffolk, for the Town Council:—

	£	s.	d.
J. & M. Patrick, Wandsworth	4,690	0	0
Leggott & Speight, Hull	4,518	18	10
R. C. Brebner & Co., Edinburgh	4,439	15	2
A. Fasey & Son, Leytonstone	3,981	8	11
W. Gradwell & Co., Fleetwood	3,602	2	0
E. R. Lester,* Plymouth	3,500	0	0

* Accepted.

Rusper (Sussex).—For the erection of a house at Rusper, Sussex, for Mr. Walter Cobb. Mr. John P. Briggs architect, Effingham House, Arundel Street, Strand London, W.C.:—

	£
Rowland Brothers	2,500
J. Hillman & Murrell	2,267
J. Ockenden & Son, Crawley, Sussex	2,100
Hull & Redford	2,050
G. Potter	1,960
W. Potter	1,930
Potter Brothers*	1,749

* Accepted. [Rest of Horsham.]

Southampton.—For the supply and delivery of about 700 tons of 24in. cast-iron pipes and about 15 tons of special castings, for the Corporation:—

	£	s.	d.
J. & S. Roberts, West Bromwich	4,502	10	0
J. Abbot & Co., Gateshead-on-Tyne	4,273	0	0
D. Y. Stewart & Co., Glasgow	4,167	0	0
J. Oakes & Co., London	4,167	0	0
Macfarlane, Strang & Co., Glasgow	4,112	15	0
R. Maclaren & Co., Glasgow	4,049	0	0
Sheepbridge Co., Chesterfield	3,932	18	4
Cochrane, Grove & Co., Middlesbrough	3,915	0	0
Cochrane & Co., Dudley	3,906	7	6
Stanton Ironworks Co., Nottingham	3,885	10	0
A. G. Cloake,* London	3,792	10	0

* Accepted.

Walthamstow.—For the erection of a new school with central hall, at Selwyn Avenue, Hale End, for the Walthamstow School Board. Mr. H. Prosser, architect. Quantities by Mr. G. T. G. Wright, 3 Great Winchester Street, E.C.:—

	£
A. G. Barton	8,062
A. Porter	7,936
Foster Brothers	7,810
Pollard & Brand	7,800
Appleby & Sons	7,666
Battley, Sons & Holness	7,494
H. J. Carter	7,456
J. & J. Dean	7,435
Sands, Palmer & Co.	7,250
Kerridge & Shaw	7,175
Knight & Son	7,173
F. J. Coxhead	6,867
Sims & Woods	5,890

Walthamstow.—For alterations, with nine new class rooms, and adapting old rooms for central halls, at the Maynard Road Schools, for the Walthamstow School Board. Mr. H. Prosser, architect. Quantities by Mr. G. T. G. Wright, 3 Great Winchester Street:—

	£
A. G. Barton	8,291
Sims & Wood	7,960
A. Porter	7,146
Knight & Sons	6,973
J. S. Scott	6,935
Sands, Palmer & Co.	6,916
Appleby & Sons	6,855
A. G. Crisp	6,750
Foster Brothers	6,725
H. J. Carter	6,715
Battley, Sons & Holness	6,287
J. & J. Dean	6,212
Kerridge & Shaw	6,150
Pollard & Brand	6,040
F. J. Coxhead	5,989

Waterford.—For the erection of a free library, for the Joint Finance and Law and Free Library Committee. Mr. Albert E. Murray, A.R.H.A., F.R.I.B.A., architect, 37 Dawson Street, Dublin:—

	£	s.	d.
J. P. Pile, Dublin	4,800	0	0
Hamilton & Titterington, Dublin	4,400	0	0
J. Hemmingway	4,178	0	0
McKee & McNally	3,853	3	9
J. Hearne, Waterford	3,803	2	1
G. Nolan, Waterford	3,746	6	4
P. Costen,* Waterford	3,710	0	0

* Provisionally accepted.

St. Peter's, Ilfracombe.—It is expected that the first portion of St. Peter's Church, Ilfracombe, now being erected at a cost of about £6,000, will be consecrated for use for public worship in July next.

Complete List of Contracts Open.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDERS MAY BE OBTAINED.
	BUILDING:		
Feb. 12	Barry, Wales—School	School Board	G. Thomas Architect, Queen's Chambers, Cardiff.
,, 12	Edgerton, near Huddersfield—Alterations to Ravensdeane		J. Kirk & Sons, Architects, Huddersfield
,, 12	Hull—Relief Office	Sculcoates Union Guardians	T. Beecroft Atkinson. 11 Trinity House Lane, Hull.
,, 12	London, N.E.—Underground Convenience	Hackney Borough Council	N. Scrogie, Borough Engineer, Town Hall Hackney, N.E.
,, 12	Plymouth—Extension of Generating Station	Corporation	Superintendent, Electric Light Station, Gunwharf Rd., Portsmouth
,, 12	Stoke-upon-Trent—Chimney Stack	Corporation	A. Burton, Borough Engineer, Town Hall, Stoke-upon-Trent.
,, 12	Warminster—Cottage	G Curtis	A. F. Long, 53 Market Place, Warminster.
,, 13	Celbridge, Ireland—Two Cottages	Rural District Council	F. Shortt, Clerk, Workhouse, Selbridge.
,, 13	Cottingley, Yorks—Houses	Messrs. Dibb	W. R. Nunns, Architect, Market Place, Bingley.
,, 13	Leeds—Urinals and Conveniences	Corporation	City Engineer, Leeds.
,, 13	Mottram-in-Longdendale, near Manchester—Hospital	Urban District Council	J. Lindley, Architect, Town Hall Buildings, Hyde.
,, 13	Oxford—Enlargement of Post Office	Commnrs. of H.M. Works, &c.	Secretary, H.M. Office of Works, Storey's Gate, S.W.
,, 13	Pentre, Glam—Wall, &c.	Rhondda U.D.C.	W. J. Jones, Surveyor, Council Offices, Pentre.
,, 13	Leicester—Generating Station, &c.	Tramways Committee	E. G. Mawbey, Engineer, Town Hall, Leicester.
,, 14	Bishop Auckland—Laundry, &c.	Rt. Hon. Lord Barnard	F. H. Livesay, 107 Newgate Street, Bishop Auckland.
,, 14	Colne—Sewage Farm Extensions	Corporation	T. H. Hartley. Borough Surveyor, Town Hall, Colne.
,, 14	Maesteg, Wales—Sixty Houses	Nantyffyllon Builders' Society	W. W. Paddison, Architect, Llynvi Offices, Maesteg.
,, 14	Colne, Lancs—Bricks, Lime, Cement, &c	Highways & Streets Committee	T. H. Hartley, Borough Surveyor, Colne.
,, 14	Blackburn—Cement, Bricks, &c.	Corporation	W. Stubbs, Borough Engineer, Municipal Offices, Blackburn.
,, 16	Chorley, Lancs—Chimney	Corporation	Borough Surveyor, Town Hall, Chorley.
,, 16	Halifax—Works	J. Whittaker & Sons	G. Buckly & Son, Architects, Tower Chambers, Halifax.
,, 16	Peebles, Scotland—Post Office	Commnrs. of H.M. Works, &c.	Secretary, H M. Office of Works, Edinburgh.
,, 16	Bootle, Lancs—Bricks, &c.	Corporation	Borough Engineer, Town Hall, Bootle.
,, 16	Morpeth—Cattle Market Works		Surveyor, Bridge Street, Morpeth.
,, 16	Northwich—Building Materials	Weaver Trustees	J. A. Sauer, Engineer, Weaver Navigation, Northwich.
,, 16	Biggleswade—School		Townsend & Fordham, Architects, Cross Street, Peterborough.
,, 17	Manchester—Police Station, &c.	Lancashire County Council	H. Littler, County Architect, County Offices, Preston.
,, 18	Devonport—Mortuary Chapel	Town Council	Surveyor, Municipal Offices, Ker Street, Devonport.
,, 18	Hove, Sussex—Walling, &c.	Corporation	H. H. Scott, Borough Surveyor, Hove.
,, 18	Littlehampton—Conveniences	Urban District Council	H. Howard, Surveyor, Town Offices, Littlehampton.
,, 18	London, S.E.—Alteration, &c. to Laundry	Lambeth Guardians	Offices, Brook Street, Kennington, S.E.
,, 18	Walsall—Transformer Station	Corporation	A. Wyllie, Borough Elec. Engineer, Wolverhampton St, Walsall.
,, 18	Workington—Alterations, &c., to Laundry		C. W. Eaglesfield, Architect, Gordon Street, Workington.
,, 19	Liscard, Cheshire—Chimney, &c.	Wallasey U.D.C.	J. H. Crowther, Engineer, Great Float, near Birkenhead.
,, 19	Woolwich—Cement, Bricks, &c.	Borough Council	F. Sumner, Borough Engineer, Maxey Road, Plumstead.
,, 19	Burton-on-Trent—Post Office	Commnrs. of H.M. Works, &c.	Secretary, H.M. Office of Works, Storey's Gate, S.W.
	ENGINEERING:		
Feb. 12	Southampton—Boreholes	Corporation	W. Matthews, 18 & 19 French Street, Southampton.
,, 12	Southampton—Engine	Corporation	W. Matthews, 18 & 19 French Street, Southampton.
,, 12	Guayaquil, Ecuador, South America—Lighting	Municipal Council	Ecuadorian Consulates, 35 Chapel Walks, Liverpool.
,, 12	London, N.E.—Electrical Plant	Hackney Borough Council	R. Hammond, 64 Victoria Street, Westminster, S.W.
,, 12	York—Bridge and Approaches	North-Eastern Railway Co.	W. J. Cudworth, Company's Engineer, York.
,, 12	Bolton—Retorts, Fireclay Goods	Gas and Lighting Committee	W. Walsh, Office Superintendent, Gas Offices, Bolton.
,, 12	Hoyland, near Barnsley—Excavating, Rubbish Tips, &c.	Urban District Council	W. V. Young, Surveyor, Town Hall, Hoyland, near Barnsley.
,, 13	Menston, Yorks—Reservoir	Wharfedale R.D.C.	E. J. Silcock 10 Park Row, Leeds.
,, 13	Darlington—Electrical Plant	Corporation	H. G. Steavenson, Town Clerk, Darlington.
,, 14	Bamford—Reservoir	Chapel-en-le-Frith R.D.C.	Sterling & Swann, Engineer, Town Hall, Chapel-en-le-Frith.
,, 14	Southampton—Motors, &c.	Ordnance Survey	Officer in Charge of Stores, Ordnance Survey Office, Southampton.
,, 14	Coventry—Gasholders	Corporation	F. W. Stevenson, Engineer, Gasworks, Coventry.
,, 14	Hinckley—Excavating, &c, Foundations of Gasholder Tank	Urban District Council	F. Lee, Engineer. Gasworks, Hinckley.
,, 14	Thurnscoe and Denaby, Yorks—Railway		S. R. Kay, 1 Albion Place, Leeds.
,, 14	Bradford—Trolley Wire, &c.	Corporation	Tramway Offices, 5 Foster Square, Bradford.
,, 14	London, S.W.—Goods Wagons	Delhi, Umballa, Kalka Railway Co., Ltd.	W. McFarlane, 17 Victoria Street, Westminster, S.W.
,, 14	Manchester—Overhead Equipment of Tramways	Tramways Committee	J. M. M'Elroy, 55 Piccadilly, Manchester
,, 16	Edinburgh—Electric Lighting Fittings	Lord Provost, Magistrates and Council.	Resident Electrical Engineer, Electricity Supply Station, Dewar Place, Edinburgh.
,, 16	Edinburgh—Reservoir, Laying Pipes, &c.	District Lunacy Board	J. and A. Leslie & Reid, 72A George Street, Edinburgh
,, 17	London, S.E.—Water Vans and Carts	Deptford Borough Council	V. Orchard, 20 Tanner's Hill, Deptford, S.E.
,, 17	Glasgow—Laundry Machinery, &c.	Parish Council	D. Wilkie & Son, 53 Bothwell Street, Glasgow.
,, 17	London, E.C.—Sewer	Corporation	Engineer, Guildhall, E.C.
,, 18	Hull—Telephone Equipment	Corporation	A. R. Bennett, 65 Renfield Street, Glasgow.
,, 18	Honley, near Huddersfield—Electric Lighting Works	Urban District Council	A. B. Mountain, St. Andrew's Road, Huddersfield.
,, 18	Waltham Abbey—Bacteria Tanks	Urban District Council	W. Turner-Streather, Surveyor, Highbridge St., Waltham Abbey.
,, 18	London, S.E.—Electric Lighting	Southwark Borough Council	Borough Engineer, 81 Borough Road, S.E.
,, 18	Southampton—Shafting, &c.	Ordnance Survey	Officer in Charge of Stores, Ordnance Survey Office, Southampton.
,, 19	Woolwich—Water Vans and Carts	Woolwich Borough Council	F. Sumner, Borough Engineer, Maxey Road, Plumstead.
,, 19	Plymouth—Wharf	Town Council	Sir J. Wolfe-Barry & Partners, 21 Delahay Street, Westminster.
,, 19	Liscard, Cheshire—Feed-water Softener, &c.	Wallasey U.D.C.	J H. Crowther, Engineer, Great Float, near Birkenhead.
	IRON AND STEEL:		
Feb. 12	London, N.E.—Sewer Ironwork, &c	Hackney Borough Council	N. Scorgie, Borough Engineer, Town Hall, Hackney, E.
,, 12	London, E.C.—Buoy Sinkers	Corporation of Trinity House	E Edwards, Secretary, Trinity House, London, E.C.
,, 12	Bagnall, Staffs—Ironmongery, &c.		E. Jones, Architect, Albion Chambers, Hanley.
,, 13	Gretna, Scotland—Iron ond Wire Fence		J. M'Donald, Solicitor, High Street, Annan.
,, 14	Blackburn—Stores	Corporation	W. Stubbs, Borough Engineer, Municipal Offices, Blackburn.
,, 14	Warrington—Stores	Sanitary Works Committee	J. Deas, Water Engineer, Municipal Offices, Warrington.
,, 14	Warrington—Stores	Water Committee	J. Deas, Water Engineer, Municipal Offices, Warrington.
,, 14	Colne, Lancs—Ironwork &c.	Highways and Streets Committee	T. H. Hartley, Borough Surveyor, Colne.
,, 14	Richmond, Surrey—Ironfounder's Work, &c.	Town Council	J. H. Brierley, Borough Surveyor, Town Hall, Richmond.
,, 16	Northwich—Iron and Steel, &c.	Weaver Trustees	J. A. Saner, Engineer, Weaver Navigation, Northwich.
,, 16	Edinburgh—Pipes	District Lunacy Board	J. and A. Lesley and Read, 72A George Street. Edinburgh.
,, 16	Bootle, Lancs—Stores and Materials	Corporation	Borough Engineer, Town Hall, Bootle.
,, 16	Plymouth—Stores and Materials	Corporation	Borough Engineer, Town Hall, Plymouth.
,, 16	Plymouth—Ironware, Iron and Steel Bolts, Nuts, &c.	Corporation	J. Paton, Borough Engineer, Town Hall, Plymouth.
,, 17	London, E.C.—Railway Stores, &c.	Southern Mahratta Rly. Co., Ltd.	E. Z. Thornton, 46 Queen Anne's Gate, Westminster, S W.
,, 18	Nelson, Lancs—Ironmongery, Pipes, &c.	Gas Committee	A. J. Hope, Engineer, Gasworks, Nelson.
,, 18	Birmingham—Stores	Interception Sub-Committee	Superintendent, Montague Street Wharf, Birmingham.
,, 18	Burton-on-Trent—Ironmongery and Castings	Urban District Council	G. T. Aynam, Borough Engineer, Town Hall, Burton-on-Trent.
,, 19	Woolwich—Stores	Borough Council	F. Sumner, Borough Engineer, Maxey Road. Plumstead.
,, 19	Plymouth—Fire Hydrants, Cast-iron work, &c.	Corporation	F. Howarth, Water Engineer, Municipal Offices, Plymouth.
	PAINTING AND PLUMBING:		
Feb. 12	London, N.E.—Oils, Paints, Plumbers' Work, &c.	Hackney Borough Council	N. Scorgie, Borough Engineer, Town Hall, Hackney, N.E.
,, 12	Bagnall, Staffs—Plumbing		E. Jones, Architect, Albion Street, Hanley.
,, 13	Preston—Painting	Corporation	Borough Engineer, Town Hall, Preston.
,, 14	Warrington—Lead Piping, &c.	Water Committee	J. Deas, Water Engineer, Municipal Offices, Warrington.
,, 14	Blackburn—Oils, Paints, Brushes, &c.	Corporation	W. Stubbs, Borough Engineer, Municipal Offices, Blackburn.
,, 14	Warrington—Oils, Paints, Varnishes, &c.	Sanitary Works Committee	J. Deas, Sanitary Engineer, Municipal Offices, Warrington.
,, 14	Richmond, Surrey—Oil, Paints, &c.	Town Council	J. H. Brierley, Borough Surveyor, Town Hall, Richmond.
,, 16	Plymouth—Tar, Creosote, Brushes, &c.	Corporation	J. Paton, Borough Surveyor, Plymouth.
,, 16	Northwich—Paints, Varnishes, &c.	Weaver Trustees	J. A. Sauer, Engineer, Weaver Navigation, Northwich.
,, 16	Plymouth—Painters Brushes, Tar, &c.	Corporation	J Paton, Borough Engineer, Plymouth.
,, 17	Glasgow—Painting and Paperhanging	Parish Council	D. Wilkie, 53 Bothwell Street, Glasgow.
,, 17	London, E.C.—Paints, Red and White Lead, &c.	Southern Mahratta Rly. Co., Ltd.	E. Z. Thornton, 46 Queen Anne's Gate, Westminster.
,, 18	Torquay—Paints, Oils, &c.	Water Committee	Water Engineer, Town Hall Chambers, Union Street, Torquay.
,, 19	Plymouth—Lead Pipe and Pig, &c.	Corporation	F. Howarth, Water Engineer, Municipal Offices, Plymouth.
	ROADS AND CARTAGE:		
Feb. 12	Birmingham—Cartage and Team Labour	Warwickshire County Council	J. Willmott, County Surveyor, Birmingham.
,, 12	Brixworth, Northants—Haulage	Rural District Council	W. H. Wykes, 7 Elysium Terrace, Northampton.
,, 12	Stratford-on-Avon—Carting	Rural District Council	W. E. Coles, Surveyor, Avon Bank, Alveston, Stratford-on-Avon.
,, 12	Aberdeen—Laying-out Approaches		Walker & Duncan, 3 Golden Square, Aberdeen.
,, 12	Basford, Notts—Road Material	Rural District Council	G. W. Hawley, Surveyor of Highways, York Chambers, King Street, Nottingham.

Complete List of Contracts Open —*continued.*

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDERS MAY BE OBTAINED.
	ROADS AND CARTAGE—*cont.*		
Feb. 12	Brixworth, Northants—Stone, &c.	Rural District Council	W. C. Woodford, 18 Market Square, Northampton.
,, 12	London, S.E.—Road Materials	Lambeth Borough Council	H. Edwards, Borough Engnr., Town Hall, Kennington Green, S.E.
,, 12	London, N.E.—Materials	Hackney Borough Council	N. Scorgie, Borough Engineer, Town Hall, Hackney, N.E.
,, 13	East Retford—Materials	Rural District Council	T. W. Denman, Clerk, Retford.
,, 14	Ebbw Vale, Mon.—Stone	Urban District Council	T. Hughes, Clerk, Council Offices, Ebbw Vale.
,, 14	Colne, Lancs—Materials	Highways & Streets Committee	T. H. Hartley, Borough Surveyor, Colne
,, 14	Richmond, Surrey—Materials	Town Council	J. H. Brierley, Borough Surveyor, Town Hall, Richmond.
,, 14	Blackburn—Materials and Labour	Corporation	W. Stubbs, Borough Engineer, Municipal Offices, Blackburn.
,, 14	Devonport—Levelling, &c.	Corporation	J. F. Burns, 29 Ker Street, Devonport.
,, 16	Plymouth—Materials	Corporation	J. Paton, Borough Surveyor, Plymouth.
,, 16	Bootle, Lancs—Stores and Materials	Corporation	Borough Engineer, Town Hall, Bootle.
,, 16	Willesborough, Kent—Making-up	East Ashford R D.C.	T. H. Wilde, Surveyor Albemarle Road, Willesborough.
,, 16	Spalding, Lincs—Granite, &c.	Rural District Council	H. S. Maples, Clerk, Spalding.
,, 16	London, N.W.—Materials, &c.	Hendon U.D.C.	S. S. Grimley, Engineer, Public Offices, Hendon, N.W.
,, 16	Ashford, Kent—Making-up	East Ashford R.D.C.	T. H. Wilde, Surveyor, Albemarle Road, Willesborough.
,, 16	York—Private Street Works	Corporation	City Engineer, Guildhall, York.
,, 17	Salisbury—Stones and Gravel	Rural District Council	F. Hodding, Clerk, Market House Chambers, Salisbury.
,, 17	Long Sutton, Lincs—Granite	Urban District Council	S. S. Mossop, Clerk, Long Sutton.
,, 17	Middlesbrough—Whinstone	Rural District Council	W. H. Dixon, District Surveyor, Kirby-in-Cleveland.
,, 18	Derby—Improvement Works	County Council	County Surveyor, Derby.
,, 18	Burton-on-Trent—Materials, &c.	Urban District Council	G. T. Lynam, Borough Surveyor, Town Hall, Burton-on-Trent.
,, 18	Eccles, Lancs—Works	Corporation	T. S. Picton, Borough Surveyor, Town Hall, Eccles.
,, 18	Headington, Oxon—Slag, &c.	Rural District Council	J. C. Coates, District Surveyor, Hartfield Cottage, near Headington.
,, 18	Huntingdon—Granite and Slag	County Council	H. Leete, County Surveyor, Huntingdon.
,, 18	Potterspury, Stony Stratford—Granite and Slag	Rural District Council	J. B. Fairchild, Surveyor, Potterspury Stony Stratford.
,, 18	Stokesley—Whinstone	Rural District Council	W. H. Dixon, District Surveyor, Kirby-in-Cleveland.
,, 18	Tamworth—Granite Crossings	Corporation	F. E. G. Bradshaw, 36 Aldergate, Tamworth.
	SANITARY:		
Feb. 12	Hoyland, near Barnsley—Stoneware Pipes, Filter Bed, &c.	Urban District Council	W. P. Young, Surveyor, Town Hall, Hoyland.
,, 12	Bramley, near Rotherham—Sewer	Rural District Council	B. Hey, 29B High Street, Rotherham.
,, 12	Hoyland, near Barnsley—Sewer, &c.	Urban District Council	W. P. Young, Surveyor, Town Hall. Hoyland.
,, 12	Kendal—Drainage Works	Corporation	R. H. Clucas, Borough Engineer. Town Hall. Kendal.
,, 12	London, N.E.—Drain Pipes, &c.	Hackney Borough Council	N. Scorgie, Borough Engineer. Town Hall. Hackney, N.E.
,, 13	Wolverhampton - Lime	Sewerage Committee	W. Clifford, Manager, Sewage Outfall Works, Wolverhampton.
,, 13	Ashby-de-la-Zouch—Sewer, &c.	Rural District Council	S. Turner, Surveyor, Measham.
,, 14	Blackburn—Pipes, Gulleys, &c., Sewerage Works	Corporation	W. Stubbs, Borough Engineer, Municipal Offices, Blackburn.
,, 14	Warrington—Disinfectants, Pipes, &c.	Sanitary Works Committee	J. Deas, Sanitary Engineer, Municipal Offices, Warrington.
,, 14	Colne, Lancs - Pipes, &c.	Highways & Streets Committee	T. H. Hartley, Borough Surveyor, Colne.
,, 14	Middleton, Lancs—Disinfectants	Corporation	C. H. Norton. Sanitary Inspector, Middleton.
,, 16	Ashford, Kent—Sewer	East Ashford R.D.C.	T. H. Wilde, Surveyor, Albemarle Road, Willesborough.
,, 16	London. N.W.—Removal of Refuse, &c.	Hendon U.D.C.	S. S Grimley Surveyor, Public Offices, Hendon, N W.
,, 16	Blackburn—Reconstruction of Privies, &c.	Health Committee	W. Stubbs, Borough Engineer, Municipal Offices, Blackburn.
,, 16	Bootle, Lancs—Earthenware Pipes, Disinfectants, &c.	Corporation	Borough Engineer, Town Hall, Bootle Lancs.
,, 16	Plymouth—Disinfectants, &c.	Corporation	J. Paton, Borough Surveyor, Plymouth.
,, 17	Belfast—Sewerage Works	Rural District Council	J. W. Robb, Clerk, Workhouse. Belfast.
,, 17	London, W. - Pipes, &c.	Acton District Council	D. J. Ebbetts, 242 High Street. Acton, W.
,, 17	London, E.C.—Sewer	Corporation	Engineer. Guildhall, E.C.
,, 18	Clacton-on-Sea—Sewers	Urban District Council	A. R. Robinson, Surveyor. Town Hall Clacton-on-Sea.
,, 18	Waltham Abbey—Bacteria Tanks	Urban District Council	W. Turner-Streather, Surveyor, Highbridge St., Waltham Abbey.
,, 18	Nelson, Lancs—Lime, &c.	Gas Committee	A. J. Hope, Engineer, Gasworks, Nelson.
	TIMBER:		
Feb. 14	Richmond, Surrey—Timber	Town Council	J. H. Brierley, Borough Surveyor. Town Hall, Richmond.
,, 14	Blackburn—Timber	Corporation	W. Stubbs, Borough Engineer, Municipal Offices, Blackburn.
,, 14	Warrington—Timber	Sanitary Works Committee	J. Deas Water Engineer, Municipal Offices, Warrington.
,, 16	Bootle, Lancs—Timber	Corporation	Borough Engineer, Town Hall, Bootle, Lancs.
,, 16	Northampton—Wood Paving Blocks	Corporation	A. Fidler, Borough Engineer, Guildhall, Northampton.
,, 18	Birmingham—Timber	Interception Sub-Committee	Superintendent, Montague Street Wharf, Birmingham.
,, 18	Burton-on-Trent—Timber	Urban District Council	G. T. Lynam, Borough Engineer, Town Hall, Burton-on-Trent.
,, 19	Woolwich—Timber	Borough Council	F. Sumner, Borough Engineer, Moxey Road, Plumstead.

List of Competitions Open.

DATE OF DELIVERY.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	DEPOSIT REQUIRED FOR CONDITIONS, &c.	BY WHOM ADVERTISED.
Feb. 13	Patras, Greece—Church	£400, £160, £80.	——	Committee for new Church of St. Andrew, Patras, Greece.
,, 16	Durban - Town Hall and Municipal Offices	£500, £300, £200.	——	W. H. Radford, Albion Chambers, King Street, Nottingham.
,, 20	Sutton Coldfield -Town Hall	£50, £30, £20.	——	W. A. H. Clarry, Borough Surveyor, Council House, Sutton Coldfield.
,, 28	Bridgwater—Appliances for Silt Disposal		£2 2s.	W. T. Baker, Town Clerk, King Square, Bridgwater.
,, 28	Cape Town—University Buildings	£400, £200, £100.	——	Agent-General for the Cape of Good Hope, London.
March 2	Whitley Bay—Board Schools		——	J. W. Mitchell, Clerk, Whitley and Monkseaton School Board, Council Buildings, Whitley Bay, R.S.O.

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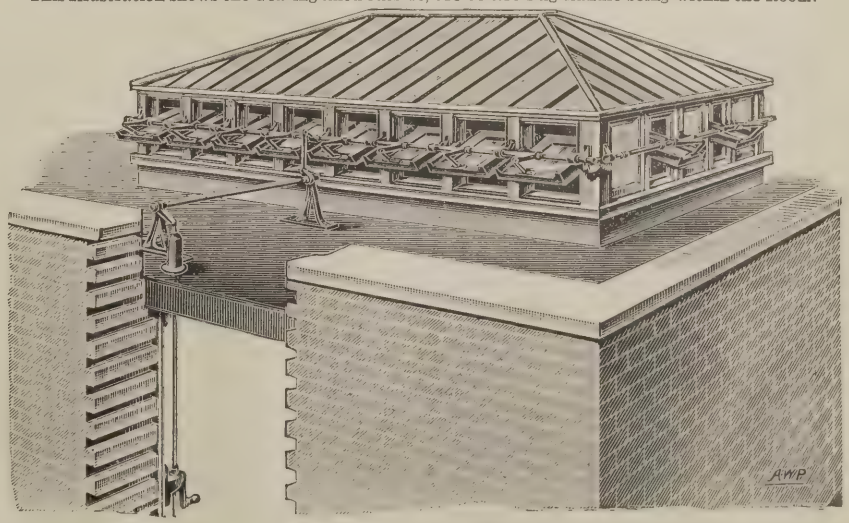
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Coming Events.

Wednesday Feb. 11.

ARCHITECTURAL ASSOCIATION. — Mr. Edward Spencer on "Gold and Silversmith's Work," 7.30 p.m.

EDINBURGH ARCHITECTURAL ASSOCIATION (Associates' Section).—Mr. J. A. Arnot on "Notes on the Treatment of Angle Sites," 8 p.m.

SANITARY INSTITUTE. — Discussion on "The Present Shortage of Water a vailable for Supply," to be opened by Mr. W. Whitaker, B.A., F.R.S., F.G.S., A.M.I.C.E., 8 p.m.

INSTITUTION OF SANITARY ENGINEERS.—Meetings of Examination and Literary Committee at 4 p.m., of General Purposes and Finance Committee at 4 p.m. and Election Committee at 5.15 p.m. Mr. J. Freebairn Stow on "The Biological Treatment of Sewage: Some Facts and Figures compiled from Three Years' Practical Working of Bacteria Beds," 7 p.m.

Thursday, Feb. 12.

ARCHITECTURAL ASSOCIATION OF IRELAND — Technical Demonstration on Iron, Steel and Brass Working at Messrs. J. & C. McGloughlin, 47 Great Brunswick Street, Dublin, at 4 p.m.

MANCHESTER SOCIETY OF ARCHITECTS —Mr. E. Percy Hinde, A.R.I B.A., on "Some Elementary School Buildings," 6.45 p.m.

SOCIETY OF ANTIQUARIES OF LONDON.—Meeting at 8.30 p.m.

LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.—Annual dinner at Queen's Hotel, Leeds, at 7 p.m.

Friday, Feb. 13.

INSTITUTION OF CIVIL ENGINEERS.—Mr. H. A. Bartlett on "The Construction and Setting-out of Tunnels in the London Clay," 8 p.m.

Saturday, Feb. 14.

JUNIOR INSTITUTION OF ENGINEERS.—Anniversary Dinner at the Hotel Cecil. Col. E. Raban presides.

Monday, Feb. 16.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.—Mr. Basil Champneys, M.A., on "College Planning," 8 p.m.

NORTHERN ARCHITECTURAL ASSOCIATION.—Annual Social Gathering.

LIVERPOOL ARCHITECTURAL SOCIETY.—Mr. J. P. Abercombie on "Leonardo da Vinci."

Tuesday, Feb. 17.

GLASGOW ARCHITECTURAL ASSOCIATION. — Mr. Harold O. Tarbolton on "Plaster Work," 8 p.m.

SOCIETY OF DESIGNERS.—Mr. F. Hamilton Jackson, R.B.A. on "Intarsia and Marquetry: The History, Principles, and Practice of the Art," 8 p.m.

SOCIETY OF ARTS (Applied Art Section).—Mr. George W. Eve, A.R.E., on "Heraldry in Decoration" 8 p.m.

Wednesday, Feb. 18.

EDINBURGH ARCHITECTURAL ASSOCIATION.—Mr. A. Hunter Crawford on "The Building of a House"—III., 8 p.m.

RUSKIN SOCIETY OF BIRMINGHAM.—Mr. M. E. Sadler, M.A., on "Applied Science and Social Control," 7.45 p.m.

NORTHERN ARCHITECTURAL ASSOCIATION. — Students' Evening.

Thursday, Feb. 19.

SOCIETY OF ARCHITECTS.—Mr. J. W. Woodall, M.A., and F. Windham, C.E., on "Acetylene Gas Lighting for Country Houses," 8 p.m.

SOCIETY FOR THE ENCOURAGEMENT OF THE FINE ARTS.—Mrs. Ray S. Lineham on "The Spirit of Ancient Egypt."

ARCHITECTURAL ASSOCIATION OF IRELAND.—Technical Demonstation on Cast Iron at Messrs. Tonge & Taggart, Windmill Lane, Sir John Rogerson's Quay, Dublin, at 4.30 p.m.

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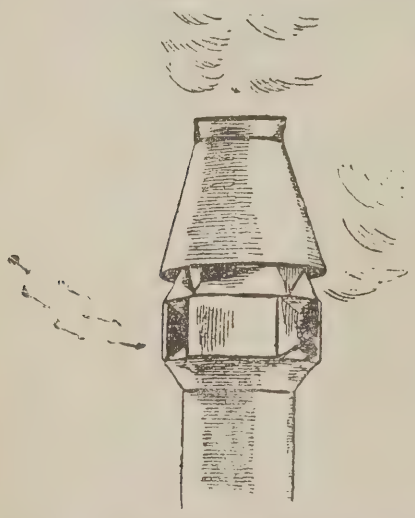
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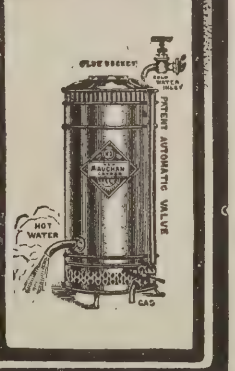
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